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NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA DEPARTMENT OF AGRICULTURE
AND
UNITED STATES DEPARTMENT OF AGRICULTURE
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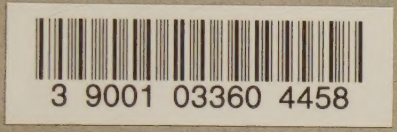

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FIFTH ANNUAL REPORT

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NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

B. W. KILGORE
DIRECTOR

RALEIGH AND WEST RALEIGH

YEAR ENDED JUNE 1919

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FIFTH ANNUAL REPORT

OF THE

AGRICULTURAL EXTENSION SERVICE

B. W. KILGORE
DIRECTOR

RALEIGH AND WEST RALEIGH

YEAR ENDED JUNE 30, 1919

North Carolina State College of Agriculture and Engineering
North Carolina Department of Agriculture
and
United States Department of Agriculture
Co-operating

RALEIGH
COMMERCIAL PRINTING COMPANY, STATE PRINTERS
1920

LETTER OF SUBMITTAL

Raleigh, N. C., January 1, 1920.

North Carolina Agricultural Extension Service
Office of the Director

To His Excellency, T. W. Bickett,

Governor of North Carolina.

Sir:—I have the honor to submit herewith report of the operations of the North Carolina Agricultural Extension Service, conducted jointly by the North Carolina State College of Agriculture and Engineering and the North Carolina State Department of Agriculture, in co-operation with the Federal Department of Agriculture, for the year ended June 30, 1919. This work is under the immediate direction of the "Joint Committee for Agricultural Work" provided for in Chapter 68 of the Public Laws of 1913, and the report is made in accordance with the requirements of the Act of Congress approved May 8, 1914, and known as the Smith-Lever Act.

Very respectfully,

B. W. Kilgore,
Director.

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Miss Mary S. Birdsong.....Secretary to Director
H. C. Evans.....Auditor and Executive Assistant

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J. K. Plummer.....Soil Chemist
W. F. Pate.....Agronomist, Soils
E. C. Blair..Assistant Agronomist, Soils
S. K. Jackson.Assistant Agronomist, Soils
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V. R. Herman.Assistant in Plant Breeding
G. M. Garren.Assistant in Plant Breeding
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†M. W. Hensel,
Specialist in Sugar Plant Production
†W. E. Hearn.....Soil Survey
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L. L. Brinkley..Assistant in Soil Survey
S. F. Davidson..Assistant in Soil Survey
†R. C. Jurney..Assistant in Soil Survey
W. A. Davis...Assistant in Soil Survey
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A. R. Russell,
Assistant in Field Experiments

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E. S. Dewar.....Assistant Chemist
R. A. Fetzer.....Assistant Chemist
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Franklin Sherman, Jr.
Chief in Entomology
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J. E. Eckert....Assistant Entomologist
†C. L. Sams.....Beekeeping
†M. R. Smith....Extension Entomologist

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Acting Chief, Division of Horticulture
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L. R. Detjen...Assistant Horticulturist
L. H. Nelson...Assistant Horticulturist
J. M. Dyer.....Assistant Horticulturist
P. T. Schooley..Extension Horticulturist

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R. S. Curtis.Associate in Animal Industry
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Poultry Investigator and Pathologist
†J. A. Arey.....Dairy Farming
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†A. C. Kimrey..Asst. in Dairy Farming
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†J. W. Sloss...Assistant in Beef Cattle
Earl Hostetler
Assistant in Beef Cattle and Swine
†George Evans..Asst. in Sheep Extension

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R. A. JEHLE.....Extension Pathologist
S. G. LEHMAN.....Asst. in Bacteriology

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F. O. BARTEL...Junior Drainage Engineer

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W. C. REEDER...Veterinarian, Extension

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†O. J. MCCONNELL.....Assistant in Cotton Grading and Marketing
†CHAS. S. JONES.....Specialist in Livestock Marketing
GORRELL SCHUMAKER.....Assistant in Marketing Fruits and Vegetables
BOLLING HALL.....Assistant in Marketing Fruits and Vegetables

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E. G. MOSS.....Assistant Director, Granville Branch Station
S. C. CLAPP.....Assistant Director, Buncombe Branch Station
A. S. CLINE.....Assistant Director Black Land Branch Station
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FARM ENGINEERING

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H. B. MASK.....Assistant State Agent
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T. D. MCLEAN.....District Agent, Central District
J. M. GRAY.....District Agent, Mountain District
O. F. MCCRARY.....District Agent, Northeastern District
N. B. STEVENS.....District Agent, Southeastern District

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Caswell..J. W. WILLIAMSON, Yanceyville
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Currituck....J. E. CHANDLER, Currituck
Dare..... ————, Manteo
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Davie.....W. F. REECE, Mocksville
Duplin.....O. W. COLLINS, Kenansville
Durham.....O. H. STANARD, Durham
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Franklin..... ————, Louisburg
Gaston.....C. L. GOWAN, Gastonia
Gates..... ————, Gatesville
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Guilford.....S. R. BIVENS, Greensboro
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Harnett.....J. C. ANTHONY, Lillington
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Henderson....————, Hendersonville
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Hoke..... ————, Raeford
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Macon.....R. P. MCCRACKEN, Franklin
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Martin.....J. L. HOLLIDAY, Williamston
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Person.....L. C. HERRING, Roxboro
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Polk.....J. R. SAMS, Columbus
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Richmond.....J. G. LAWTON, Rockingham
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Rowan.....S. S. STABLER, Salisbury
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Sampson.....H. L. BOYD, Clinton
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Stanly.....R. F. HOUGH, Albemarle
Stokes.....————, Danbury
Surry.....EWING MILLSAPS, Dobson
Swain.....FRANK FLEMING, Bryson City
Transylvania...R. E. LAWRENCE, Brevard
Tyrrell.....————, Columbia
Union.....T. J. W. BROOM, Monroe
Vance.....J. A. GOODWIN, Henderson
Wake...W. H. CHAMBLEE, JR., Wakefield
Warren.....J. W. BASON, Warrenton
Washington...R. W. JOHNSTON, Plymouth
Watauga.....————, Boone
Wayne.....A. K. ROBERTSON, Goldsboro
Wilkes.....A. G. HENDREN, Straw
Wilson.....B. T. FERGUSON, Winton
Yadkin.....M. W. MACKIE, Yadkinville
Yancey.....F. E. PATTON, Burnsville

NEGRO AGENTS

J. D. WRAY, Farm Makers Club Agent, Asst. in charge, Negro Boys' Club Work. Greensboro,N.C.
L. E. HALL, District Agent.....Chadbourn, N. C.

LOCAL AGENTS

E. F. COLSON, Ansonville.....Anson County
W. D. BROWN, Winton.....Hertford County
OLIVER CARTER, Parmele.....Pitt, Edgecombe and Martin Counties
D. D. DUPREE, Wilmington.....New Hanover, Pender and Brunswick Counties
H. G. FORNEY, Bricks.....Nash, Halifax and Edgecombe (North)
G. W. HERRING, Clinton.....Sampson County
R. J. JOHNSON, Warsaw.....Duplin County
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C. S. MITCHELL, Gatesville.....Gates County
J. W. MITCHELL, Clarkton.....Columbus and Bladen Counties
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R. C. WARD, Laurinburg.....Scotland and Robeson Counties
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F. D. WHARTON, Henderson.....Vance, Warren, Granville Counties
L. H. ROBERTS, Raleigh.....Wake County

HOME DEMONSTRATION WORK.

MRS. JANE S. MCKIMMON.....State Home Demonstration Agent
MISS LAURA M. WINGFIELD.....Assistant State Home Demonstration Agent
MRS. J. H. HENLEY.....District Agent, Western District
MRS. ESTELLE T. SMITH.....District Agent, East Central District
————.....District Agent, West Central District
MRS. CORNELIA C. MORRIS.....District Agent, Central District

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Anson.....MRS. ROSALIND REDFEARN.....Wadesboro
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Bertie.....MRS. W. F. EARLEY.....Aulander
Bladen.....MISS ANNA MARY BAKER.....Elizabethtown
Brunswick.....MISS MARY C. BENNETT.....————
Buncombe.....MRS. RACHEL T. HANAMAN.....Asheville
Cabarrus.....MISS SALLIE HUNTER.....Concord
Catawba.....MISS MARY ROWE.....Newton
Cherokee.....MRS. J. W. DYER.....Murphy
Chowan.....MISS CIRCE COBLE.....Edenton
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Franklin.....MISS PAULINE SMITH.....Louisburg
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Greene.....MISS EDNA STROUP.....Snow Hill
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Harnett.....MISS RACHEL MARTIN.....Lillington
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Montgomery	Miss	Lillian Cole	Troy
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Northampton	Miss	Sarah Maude Padgett	Jackson
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Orange	Miss	Elizabeth Cornelius	Hillsboro
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Pender	Miss	Eva Logan	Burgaw
Perquimans	Miss	Helen Gaither	Hertford
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Pitt	Miss	Mabel Bradsher	Greenville
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Robeson	Miss	Flax Andrews	Lumberton
Rockingham	Miss	Mazie Kirkpatrick	Reidsville
Rowan	Miss	Lida M. Olive	Salisbury
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Stanly	Miss	Myrtie Keller	Albemarle
Swain	Miss	Della E. Stroud	Bryson City
Transylvania	Miss	Lulu M. Cassidey	Brevard
Union	Miss	Blanche Carter	Monroe
Vance	Mrs.	J. K. Plummer	Middleburg
Wake	Mrs.	Chloe Blalock	Raleigh
Warren	Miss	Annie Lee Rankin	Warrenton
Washington	Miss	Alice E. McQueen	Plymouth
Wayne	Miss	Elizabeth Bogle	Goldsboro
Wilson	Mrs.	Willie White Boyette	Wilson

The members marked with * are members of the Joint Committee for Agricultural Work, and the Station is under their direction.

†In coöperation with the U. S. Department of Agriculture.

FIFTH ANNUAL REPORT

OF THE

NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

FOR THE YEAR ENDED JUNE 30, 1919

BEING THE THIRTEENTH YEAR OF EXTENSION WORK IN THE STATE

B. W. KILGORE, DIRECTOR
F. H. JETER, AGRICULTURAL EDITOR

Released from a large amount of emergency war work in the fall of 1918, the Extension Service workers turned to their program of demonstration and other activities with renewed faith in the possibilities of agriculture and rural life in North Carolina.

During the first part of the fiscal year they had continued working on a state-wide program for food production and conservation, and had assisted in a large amount of emergency work in connection with the floating of loans and the raising of relief funds.

With the return of peace, the extension workers found themselves faced with an epidemic of influenza, and with problems of readjustment of agriculture to conditions that followed the war. County agents were called upon to assist farmers in handling their crops with less labor than in former years, while the home demonstration agents devoted a part of their efforts to helping the housewives meet increased living costs.

The record of the year shows the Extension Service workers gradually returning to lines of work that were of necessity curtailed during the two previous years, because of the amount of emergency work they were called upon to do while the Nation was at war. There has been an increase in the amount of demonstration work conducted and the benefits of this, to individuals and communities, has again shown the soundness of this method of teaching.

The demonstration method, whether it be in the growing of cotton or other crops, or in teaching the principles of domestic science through applying them in the home, always results in improvements that are not limited to the individuals most directly concerned. Examples of this are found where, through the efforts of county agents and extension specialists, whole communities have adopted one strain of improved cotton seed, because it had been shown to be more profitable by actual tests in the neighborhood, or where as a result of demonstrations in bread making, many housewives are serving their families with better and more nourishing bread.

With the soundness of the demonstration method established, however, extension workers are finding that in many instances organiza-

tions of farmers and housewives are becoming more necessary in order to spread the results of demonstration work throughout whole communities. This is reflected in the growth during recent years, and especially during the past year, of new organizations of farmers, women, girls and boys in clubs, and of all four elements in community clubs.

STATISTICAL SUMMARY

An indication of the magnitude of agricultural extension work in this State may be gained from the following statistical review:

During the year 19,365 demonstrations were conducted in the growing of field crops, and 76,386 demonstrations in raising and handling livestock. There were 7,828 orchard demonstrations given, covering a total of 605,857 trees, most of these in home orchards.

Two hundred and sixty-one community clubs were organized through the joint efforts of farm and home demonstration agents, with a total membership of 12,975. In addition to these clubs, there were 39,727 members of local clubs organized among women, boys and girls for raising crops, poultry and pigs, and for canning, preserving food and studying home problems.

Coöperative marketing organizations to the number of 100 were reported doing a business of $1,111,851 during the year. County agents rendered 71,049 services to individuals and local organizations in handling fertilizers, manure and lime, including buying and selling and the proper use of these on the farm. A total of 30,117 bales of cotton were classed by specialists during the year.

Construction work in which agents assisted, included the building of 44 dipping vats, in which 29,475 cattle were dipped for the control of ticks; 100 silos; 4,489 farm buildings erected or improved, and 300 potato storage houses planned for individuals and organizations.

Through the efforts of agents 775 farm water systems were installed; 2,524 lighting systems, and 5,402 rural telephones. Home grounds were improved on 5,914 farms, and 25,730 separate services were rendered in improving sanitary conditions. There were 295 drainage systems installed, covering 2,291 acres that were tiled, and 19,625 acres ditched. Terraces were laid out on 2,563 farms, embracing an acreage of 37,294.

New home gardens to the number of 26,217 were started; 33,500 bushels of good seed secured; 327 farm woodlots improved; 9,177 sugar plant demonstrations made; assistance given in choosing, buying and operating 25,263 farm implements; and farm management surveys were made and plans furnished to 374 individuals or communities.

In carrying on their work, the extension force made 120,651 visits; traveled 961,173 miles; held or addressed 22,613 meetings with a total attendance of 1,073,874; wrote 376,068 letters; published 4,893 arti-

cles in the press; mailed 342,086 bulletins and 563,190 circular letters. There are now 65,000 names on the mailing lists of the Extension Service.

There were 89,793 individual calls made on county agents; 275 agricultural fairs held; 449,000 bulletins printed, and 488 volumes added to the Extension Service library.

Home conveniences to the number of 5,816 were installed in farm homes; 1,719,022 containers of fruits and vegetables filled by club members; 45,051 pounds of products brined, and 61,646 pounds of fruits and vegetables dried.

CHANGES IN STAFF

A number of changes in staff have occurred since the last annual report, while some workers who were released for war service have returned to their old places in the extension work. Changes in staff at headquarters include the resignation of W. R. Camp as chief of the division of markets, who left to accept a position with the University of California; W. W. Garnett, assistant superintendent of credit unions, resigned to enter similar work in Georgia; O. J. McConnell resigned as superintendent of warehouses to enter commercial cotton brokerage work; A. J. Reed resigned as head of the dairy farming office to engage in industrial creamery work in Raleigh; and was succeeded by J. A. Arey, formerly county agent in Iredell County; N. E. Winters, extension agronomist, resigned to enter county agent work in Mecklenburg County; J. E. Moses and J. C. Anthony resigned as pig club agents; Dr. G. H. Roberts, veterinarian, left to accept a position with the Rockefeller Foundation in Brazil.

Additions to the staff include: H. H. B. Mask, assistant state agent in farm demonstration work; Miss Laura M. Wingfield, assistant home demonstration agent; and A. C. Kimrey and E. C. Brintnall were added to the dairy farming office during the year.

COOPERATION WITH OTHER INSTITUTIONS AND AGENCIES

Throughout the year the Extension Service has received the hearty support of educational institutions and commercial organizations in the State.

Among the educational institutions with which cordial relations were maintained were the North Carolina College for Women at Greensboro, State Department of Education, and the Negro Agricultural and Technical College at Greensboro.

Many commercial organizations, including banks, chambers of commerce, fair associations, railroads, and merchants' associations have assisted extension workers in carrying out plans for community agricultural improvements.

In carrying on boys' and girls' club work, county, farm and home demonstration agents have found many business men who would gladly offer prizes for contests among the club members. Superintendents of schools and rural school teachers have also aided greatly in the work with boys' and girls' clubs.

The press of the State has been unusually helpful during the year in carrying the message of better farming and better homes to its readers. This cordial support of the press has not been confined to the rural weekly press, but the larger city dailies, realizing the importance of agriculture as a chief industry of North Carolina, have carried much material of value in fostering agricultural development in the State. Special mention may be made of The Charlotte Observer, Raleigh News and Observer, Winston-Salem Journal, Wilmington Morning Star, Greensboro Daily News, and the Norfolk Virginian Pilot, which have carried from time to time feature articles about the work of the Agricultural Extension Service.

FARM DEMONSTRATION WORK

During the year there were 80 counties with white county agents and 26 counties served by 15 local negro agents. These agents were working under the immediate direction of district agents, club agents and State agents, making a total of 113 persons engaged directly in this work, who had at all times the advice and assistance of specialists from Raleigh and West Raleigh.

It is through this organization that the results of the work of the Experiment Station of the College and Department of Agriculture are carried directly to the farmer by means of demonstrations in growing crops, raising livestock and handling other farm problems.

Demonstrations were conducted on growing corn, cotton, tobacco, small grains, summer and winter legumes, sorghums, hay, forage and clover crops, sweet and Irish potatoes, truck and garden crops, and with orchards. Work with livestock included horses, beef and dairy cattle, swine, sheep and goats, and poultry.

Besides this demonstration work, the county agents were called upon to supply information concerning marketing and farm management. Through meetings, office and telephone consultations, personal visits and letters, county agents reached a total of 779,450 persons last year.

Many county agents organized community clubs, in order to best serve their counties. There are now a total of 269 such clubs, of which 218 were organized during the year. The total membership is 12,080. These clubs are coöperating with the agents in farm demonstration work.

A greater interest in coöperative buying and selling organizations is shown, there now being about 100 such organizations handling farm

products and supplies. Purchases by these organizations last year amounted to over a million dollars with an estimated saving of 10 per cent to the members.

By the use of market bulletin boards and through market information supplied from our Division of Markets, a large amount of buying, selling and exchange of products among farmers, within a county and between counties, has been brought about during the year.

Demonstrations in growing corn, which many farmers are still buying instead of producing, were conducted on more than 11,000 acres by 1,600 coöperating growers. The average yield for the 900 who reported, was 45.6 bushels, or more than twice the average yield for the State. This work is resulting in a large increase in the amount of improved seed corn planted because careful selection is practiced in the fields. Agents estimate that 20,000 persons were influenced to use better methods of corn growing and practice seed selection through corn demonstrations.

Similar demonstrations with cotton show that 600 growers produced an average yield of over 1,400 pounds of seed cotton to the acre, which is toward twice the average yield for the State. This work with cotton is especially significant, in view of the coming of the boll weevil, and through cotton breeding clubs many communities are preparing to grow strains of cotton best adapted to meet conditions where the boll weevil becomes established.

Work With Negroes

During the year there were 2,316 negro demonstrators working an acreage of 12,148, of which more than half was planted to corn and small grains. Working under the supervision of white county agents and district agents local negro agents in 26 counties reached 74,902 farmers through meetings held and addressed. They were instrumental in introducing 154 pure-bred dairy cattle and 75 pure-bred hogs on farms in different parts of the State, and assisted in planning and starting grazing crops and pastures on more than 500 farms.

Coöperative buying and selling organizations among negroes did a business of $31,799.58 during the year, at an estimated saving to members of $2,808.17. Community clubs, to foster agricultural improvement, were organized in 146 neighborhoods included in demonstration territory.

Through demonstration work conducted by members of boys' and girls' clubs, adult negroes are becoming more interested in better farming methods and are learning, from their children in the clubs, that it pays to cultivate more intensively, use better seed and fer-

tilizer, and take better care of their livestock. Negro boys and girls, organized in clubs, last year produced products valued at about $98,000.

Boys' Agricultural Clubs

Boys' club work, now conducted under the supervision of the state farm demonstration agent, has been more closely articulated with the work of county agents. The present plan is to confine the work to organized clubs, thus saving time of the county agents and permitting better supervision. It also develops community spirit and leadership among the boys, which was lacking when enrollment was scattered through communities without being gathered together in organized clubs.

Records of the year show the largest enrollment in poultry clubs, pig clubs were second and corn clubs third. Catawba County now sells more than $30,000 worth of chickens and eggs each month, and through the development of poultry clubs North Carolina may yet rank among the leading states in poultry production.

Club work has done more than any other one agency in stocking North Carolina farms with better hogs, by placing thousands of purebred registered sows and boars in different sections of the State.

In plant club work five boys produced an average of over 100 bushels of corn to the acre, while the average for all members reporting was 49 bushels. Buncombe County corn club members averaged more than 77 bushels of corn to the acre. The average yield for cotton clubs was 814 pounds of lint to the acre. Yancey County reports a yield of 272 bushels an acre of Irish potatoes.

Exhibits from boys' and girls' clubs have been a feature of State, county and community fairs and have been of educational value to other boys and girls and to adults. At the Onslow County Fair the only registered, well-bred, and properly conditioned hogs were shown by the boys' pig club.

HOME DEMONSTRATION AND GIRLS' CLUBS

Working through organizations of women and girls, and through community clubs, home demonstration agents in 61 counties have helped solve, in thousands of homes, some of the problems incident to the unsettled conditions of the past year.

Over 6,000 demonstrations were made by county home demonstration agents in addition to those made by members of women's and girls' clubs. These latter demonstrations, which amounted to 3,574, are significant in showing how individual club members are becoming more and more self-reliant and are rendering valuable services to their communities.

While there is probably no accurate measuring rod to gauge the value of the work of home demonstration agents to the State, the

figures on the number of home conveniences installed through the work of the agents suggest the tremendous possibilities of the work in the way of adding to the comfort, happiness and health of rural families. How many steps have been saved to the housewives in the 4,475 homes where kitchen cabinets were installed last year, and how different are living conditions in more than 1,000 homes where electric lighting systems have replaced coal oil lamps? In these same homes women have been saved much labor through the operation of washing machines and electric irons, and as a result have more opportunity for reading and recreation, and more time to devote to their children.

Home demonstration agents have also assisted housewives in meeting the high costs of living through instruction in the purchase and preparation of foods, with special attention to the needs of children and invalids; in making household budgets and in keeping accounts; and have rendered assistance to women and girls in making over old clothes and hats so that they would be both serviceable and attractive.

Through the coöperation of school teachers the demonstration agents have been instrumental in establishing hot lunches in 41 rural schools, the materials for the lunches being supplied by the pupils and the supervision taken over by local club members. The effects of this work will be far-reaching in the way of improved health among the children, and in better records made in their studies. One community became so much interested in the school lunch that it raised an acre of cotton near the schoolhouse and gave the proceeds toward the purchase of better equipment for serving the lunches.

Clubs in 15 counties devoted special attention to work with muscadine grapes, which included planting, culture and the making of jams, jellies, pastes, preserves and grape juice from these grapes. A total of 1,719,022 containers of fruit and vegetables were filled last year by club women and girls.

Agronomy

Special efforts have been made by the Division of Agronomy to impress farmers of the State with the importance of the fertility of their soils, and the disastrous results that would follow the neglect of this important asset of the State. Farmers are being urged to build up the organic matter of their soils by growing more legumes in proper rotation with other crops, and in handling the legumes in such a manner as to get the greatest benefit from them. Where large crops of legumes are grown and turned back into the soils of poor or medium productivity, there should be a marked increase in the crops which follow.

Another main line of activity of this Division has been that of crop improvement through the selection of improved seed. This includes demonstrations of the value of using improved seed of cot-

ton, soybeans, corn, sorghum, and small grains. In this work the Division has coöperated with eight of the farm life schools. At the Craven County and Philadelphus schools cotton breeding work has been started with the aim of having these schools act as sources of supply for good cotton seed in their communities.

The work with sugar plants has been continued through coöperative arrangements with the U. S. Department of Agriculture, and sugar beet seed of improved strains were distributed for tests to farmers in Guilford, Rowan, Catawba, Caldwell, Iredell, Henderson and Transylvania counties. Interest in obtaining sugar from maple trees of the State has been stimulated by the Division, and it is estimated that sufficient sirup should be produced in Ashe, Watauga and Avery counties, during the coming season, to bring in an income of $1,600,000, which, before this work was started, was lost to the State.

Plant clubs have been organized in a number of counties and the total enrollment of young folks in these clubs is 1,324, of which 894 are in corn clubs, 105 in cotton clubs, 10 in oat clubs, and 143 in peanut clubs. This work is carried on through county agents, who assist in organizing and furnishing information to the club members. Summer club encampments have been held in counties where there was much interest in club work. At these encampments, short courses of instruction are given and they show promise of stimulating a deeper interest in future club work.

An increasing interest in soybeans among farmers has led the Division to devote considerable time and attention to this crop, in the way of seed improvement, cultural practice, and handling and marketing. Soybeans not only require relatively little labor to produce them, but are a great soil improver, and are high in feeding value. This State in 1918 produced about one-half of all the soybeans grown for seed in the United States. The Division of Agronomy has worked out, and made available to farmers, information showing how to adapt soybeans in rotation with other crops, and has pointed out the value of this crop to North Carolina agriculture.

ANIMAL INDUSTRY

A striking feature of the extension work in Animal Industry has been the development of cheese factories in the mountain section of the State. At present there are 28 cheese factories in operation, with an estimated production in 1919 of 627,000 pounds of American cheese, contrasted to a production in 1915 of only 20,000 pounds. New factories are being built as rapidly as the dairy extension workers can furnish plans and assistance in the several communities interested.

In efforts to improve the quality of livestock in the State, the Division has placed 626 bulls and cows, most of which were pure-breds,

among the farmers of the State during the year, and has organized many bull associations so that a neighborhood may be induced to purchase a number of excellent bulls and pass them from one block to another as needed.

Sheep extension workers were instrumental in bringing in 2,350 grade and 80 pure-bred ewes and 110 pure-bred rams, during the year. There is a great need for improvement in the flocks of sheep in the State, and this work of introducing new blood and rendering assistance to sheep raisers in handling their lambs and wool should do much to build up the sheep industry in the State. The Division has obtained assistance from forty coöperative agencies in carrying on its work with sheep raisers.

In swine and beef cattle work, the year has shown an increasing number of pure-bred animals brought into the State through the influence of extension workers who assist individuals or groups of farmers in the selection, purchase and distribution of these animals. Demonstrations have been given in feeding, management and in the construction of barns, silos, houses and self-feeders for hogs.

An activity that promises much for the future development of livestock in North Carolina is that of organizing beef, calf and pig clubs to which the Division devoted considerable attention last year.

Work with poultry clubs has been unusually successful. Pure-bred birds raised by boys and girls have been exhibited in competition with birds raised by fanciers and have taken their share of the prizes offered at local, State, and even National exhibits. The total enrollment of boys and girls in poultry clubs is 3,625, of which 1,200 are colored children.

Entomology

The war emergency work of the entomologists clearly demonstrated the value of placing before producers the results of experiments and investigations with insects. Among the problems presented for solution last year were: the control of the green clover worm in soybeans, canker worm in forests, and potato beetles.

Extension work in the counties already invaded by the boll weevil has begun, and will be carried on intensively the coming season. At the present time the boll weevil has invaded the whole of Brunswick and New Hanover counties, and adjoining parts of Pender, Bladen, Columbus and Robeson.

Demonstrations in potato spraying have been conducted which show conclusively the monetary gains from the spraying of this crop. The tests indicate, thus far, that the best results are obtained with home-made poisoned Bordeaux mixture.

The shortage of sugar has stimulated the beekeeping industry, and, through the efforts of extension men, individuals and organizations are practicing better methods of handling bees, and are using

more improved modern equipment. Since extension work with bees was started, a large supply house has opened a branch at a location where it can serve many beekeepers, and reports that business in this State has increased 600 per cent in three years.

Horticulture

Through orchard demonstrations many orchards that were not profitable have been placed upon a paying basis, and this has resulted in other growers adopting improved methods of handling their orchards. The demonstrations covered pruning, spraying and orchard practice, while advice and assistance was furnished in locating, planting and in the selection of desirable varieties.

Through the coöperation of county agents, 150 one acre demonstration orchards have been planted during the past three seasons, and in many instances are doing well where they have received sufficient attention. With one or more of these small orchards located in each county, correctly planted and properly cared for, there should be an increased interest in the growth of fruit for home use and for local markets.

Through the efforts of the Division, the exhibits of horticultural products at the State Fair, last year, were larger and more varied than at former fairs, about two carloads of fruit being shown. More than 50 varieties were exhibited, including over 39 varieties of apples in barrels, boxes, one hundred lots and on plates. The potato exhibit included 29 varieties of Irish and 19 varieties of sweet potatoes.

Members of the Division acted as judges of horticultural products at a number of fairs and in so doing were able to encourage the production of good marketable fruits and vegetables, rather than the overgrown, ungraded, diseased and insect injured products that often find their way to market.

Under a coöperative arrangement with the Federal Bureau of Markets, a sweet potato storage house construction campaign was continued during the year, two specialists being detailed for work in North Carolina from the U. S. Department of Agriculture. Plans, specifications, and bills of material for building storage houses were furnished to growers and organizations, and in some cases, assistance in building was rendered. Instruction in the operation of storage houses, given to those who had built houses, aided in saving sweet potatoes in storage. The average loss in the type of storage houses recommended has been less than 5 per cent during the year.

MARKETS AND RURAL ORGANIZATION

The Division of Markets, following out the well established principle that any improvement in marketing and distribution of farm

products must be based on accurate information, continued to make surveys of cotton warehouses, and of markets for soybeans, peanuts, sweet potatoes, hogs, beef cattle, sheep and wool, and other products.

Organization of the State cotton warehouse system, under the State Warehouse Act, was started during the year and 11 counties have taken up the matter of building warehouses for cotton. The saving of $2.50 a bale damage, through storing cotton in warehouses instead of allowing it to remain in the open, is estimated to be sufficient to build all the warehouses needed.

The surveys of cotton warehouses have shown clearly the advantages of farmers being organized so that they can market their cotton in large, even running lots through their own warehouse companies, thus saving not only the loss from "country damage," but receiving from $5 to $20 more a bale than they would receive from their individual small lots of ungraded cotton.

Valuable assistance to farmers in marketing their cotton has been rendered through the classing of cotton. Six branch offices graded, during the year, 26,081 bales of cotton for farmers and 4,036 bales for cotton mills.

Surveys of the soybean and grain markets show the need of warehouses for handling these crops, which, because they could not be stored for lack of space, sold at lower prices immediately after harvested, than they did at a later date after the crop was out of the hands of the farmers. The same condition was true of peanuts, although through efforts of the Division of Markets some growers were able to hold their peanuts until prices recovered from the low level of four cents a pound, to which they declined from nine cents at the time of the armistice.

Eighteen coöperative shipments of fat hogs were made, with the assistance of the Division, and proved profitable to the farmers. It is anticipated that there will be an increased number of such cooperative shipments of hogs in the future, because of the interest aroused by the success of these shipments.

Through a survey of markets for beef cattle, it was found that growers usually sell their animals too early, or contract with dealers from one to six months before delivery. As a result of these conditions, cattle may be sold at prices below their actual value, and coöperative selling of fat cattle direct to the packers is being advocated by the Division of Markets to remedy this situation. It is planned to hold two big sales the coming season to develop the cooperative marketing of fat cattle.

Last year six coöperative shipments of sheep were made and the wool from eight counties was collected and consigned to Philadelphia under the direction of the Division. Further development of the

coöperative handling of sheep and wool is expected, and plans are being made to assemble all North Carolina wools at three or four points and sell by auction.

Several marketing associations have been assisted in organization work during the year. These include: a cold storage and marketing association for handling apples, potatoes and cabbages; two potato and cotton warehouses; one strawberry association; the Eastern Carolina Produce Exchange which has already saved from $15,000 to $25,000 to growers of Irish potatoes; the Carolina Potato Exchange at Elizabeth City; and the Tabor Produce Exchange and the Mountain Growers Exchange at Waynesville.

The further development of the market news service for North Carolina products has been the means of improving market conditions for farmers, while through the monthly farmers market bulletin an exchange of products among farmers themselves has been fostered.

Farm Drainage

Continuing the work of previous years, the Drainage Division has, during the year, made preliminary examinations, surveys, designs and reports for tile drainage systems on 24 farms in 11 counties, comprising a total area of 1,200 acres. About 12,000 feet of tile have been installed on these farms.

As an aid to individuals and communities contemplating large scale drainage operations, six preliminary or reconnaissance examinations have been made and reports prepared, covering a total area of 119,000 acres.

Agricultural Fairs

A new record for fairs was established last year, there being a total of 275 held under the direction of the Extension Service. Much credit for this showing is due to the farm and home demonstration agents, to district agents, and to the fair secretaries, who received splendid support from the public.

A number of contests of an educational nature were organized at fairs. These included judging contests with sheep, dairy cattle, beef cattle, hogs, poultry, and horses, and were supervised by representatives of the Animal Industry Division.

The Extension Service supplied judges for exhibits at the different fairs, and were assisted in this work by twelve seniors from the State College during the season.

The following organizations rendered valuable assistance, and their hearty coöperation contributed to the success of the fair program: State Board of Health, State Insurance Department, National War Loan Organization, Department of War, The North Carolina Cotton Association, and the State Department of Education.

Farmers' Institutes

Despite the epidemic of influenza which interfered seriously with institute work, a total of 218 institutes were held during the year, with 403 sessions and an attendance of 25,835 persons. Twenty-five institutes for which plans were made had to be canceled because of the epidemic.

Twenty-four of the institutes held were for negroes, and those attending showed unusual interest and were very appreciative of the help given to them through the institutes. The total attendance at these 24 meetings was 5,045.

Plant Pathology

Progress in work with cotton anthracnose was made during the year, a total of 14,500 bushels of high grade seed being obtained and planted in demonstration fields. An inspection of the fields from which this seed was obtained, made in 1918, showed few bolls infected with anthracnose, the percentage being about one in most of the fields, while fields grown from inferior seed had from 25 to 50 per cent of infected bolls. This work was carried on jointly with the Division of Plant Breeding, because it is desirable to use only a few of the best standard varieties and to keep them pure as well as free from anthracnose. From plantings in 1919, it is estimated that about 19,000 bushels of high grade seed will be obtained for planting in 1920.

Wilt resistant cotton was grown in five counties and proved very resistant to the wilt disease. In Pitt County one bale and one-third was obtained on land which had produced but one-third of a bale the previous year. As a result of this demonstration, 50 acres of Dixie wilt resistant cotton was grown in Pitt County this year.

The Division distributed tomatoes that were resistant to fusarium wilt in a number of counties, and assisted in the control of late blight of tomatoes in Avery and Mitchell counties. Through county agents, many individual farmers were visited and told how to recognize and control sweet potato diseases, which take a heavy toll of potatoes even after they are in storage houses unless the diseases are controlled in the field. Assistance was rendered to many individuals and groups of farmers in the control of other diseases affecting lettuce, corn, Irish potatoes, apples, peaches, cabbage and other truck crops.

FARM MANAGEMENT

Under the influence of war conditions the Division of Farm Management, during the fiscal year beginning July 1, 1918, gathered, tabulated and made available information on production, which, ac-

companied with suggestions to farmers and organizations, looked toward the placing of North Carolina upon an absolutely self-supporting basis.

Standards of consumption were determined for farm families, and figures gathered on production of crops and livestock. From this data it was possible to make suggestions and recommendations through county agents and the press as to crops and livestock needed to sustain the population of the State. This work was completed in July, 1918, so that farmers could make up deficiencies by planting fall crops or raising additional livestock where needed.

Plans were developed for organizing farms for greater efficiency, and through letters and personal visits many problems of management were solved for individual farmers and for communities. In nearly all cases better arrarngements of fields were recommended, thus allowing for proper rotation of crops, and economy in the use of implements, teams and labor. Means of distributing and using labor throughout a greater portion of the year was asked for by most of the farmers consulted.

Data from demonstration surveys made in eight counties have been used in advising coöperating farmers on problems of organization and management during the year. Interest in cost accounting for farm crops has been increasing, and numerous inquiries concerning cost accounting for peanuts, cotton, tobacco and wheat were received and handled either by letter, conference, or at open meetings which were well attended.

Farm Forestry

Through surveys of farm woodlands, owners have been supplied with information in regard to management of their properties, protection against insects and disease, fire, and damage from grazing. In addition, owners have received assistance in marketing their timber, through estimates, price information, and, in some cases, by actual supervision of logging, sawing and handling their timber.

It is thought that actual assistance in the handling of farm timber will create greater interest in proper management and utilization among owners. It is not to be expected that owners will practice proper management and utilization, unless they can realize either a financial return, or obtain a betterment in the stand of timber on their lands.

No tract, however, has been handled by the Division unless the owner desired to market material which should be cut for the betterment of the entire stand, or where the land was to be cleared for cultivation. If an owner's policy of land utilization is sound, it is felt that he should be aided in the sale of the cutting. Thinnings, or other improvement cuttings will also be conducted under this system.

As a demonstration of handling and marketing timber from farm woodlands, a tract of about 500 acres, near Hillsboro, has been selected and the Division will direct the operation of logging, sawing and marketing under forestry principles, acting as the owners' agent. Three other tracts, aggregating 2,450 acres, have been placed by their owners under the direction of the Division for future demonstrations.

FARM ENGINEERING

Through assistance in the installation of water supply, sewage disposal and electric lighting systems, the extension farm engineer has furnished a number of communities with concrete demonstration of the advantages of these conveniences on the farm.

Estimates, plans and bills of material have been furnished to persons interested in improving their homes and barns, or doing other construction work, while advice and help has been rendered to individuals and communities in obtaining and operating improved farm implements.

In carrying on this work, the extension farm engineer wrote 1,300 letters and traveled more than 14,000 miles during the year.

Publications

Twenty-four extension circulars, comprising 159,000 copies, were issued and distributed during the year. Many of these were mailed to lists kept in the office of the Division of Publications, though some were sent out in bulk for distribution by county agents and other extension workers.

Other forms of printing issued included five poster bulletins, one of which called attention to the cheese factories in western North Carolina, and was the first lithographed poster issued by the Extension Service.

Through the coöperation of the press, readers are kept informed of new bulletins as they come from the printer, and this results in a distribution to persons particularly interested, whose names are not kept on office mailing lists. Recently an accurate count of all requests received in two weeks showed a total of 973 separate letters and cards asking for publications of the Extension Service, Experiment Station and State Department of Agriculture.

Very cordial relations with the press of the State have been maintained, and in addition to the EXTENSION FARM NEWS and a special news service, feature articles have been sent out and widely used by the leading dailies of the State. The agricultural press, both State and National, has carried articles on North Carolina farming supplied by the Agricultural Editor.

Reports of Heads of Divisions and Financial Statement

On the following pages will be found a financial statement and the detailed reports of the several divisions of the Extension Service, some of which indicate, by statistical summaries, the extent and variety of the efforts being made to improve agriculture and rural home life in North Carolina.

REPORT ON FARM DEMONSTRATION WORK

To the Director:

Sir:—Herewith attached you will find our annual report on the year's work just closed.

This report includes all the work done by white agents with white men, white boys' clubs and with negro farmers; and all the work done by negro agents, both with adult farmers and negro boys' clubs. The summary at the end of the report shows the vast amount of work accomplished during the year.

In several paragraphs we are giving, as duplication reports, the work of the separate divisions in order that it may be seen what each division is accomplishing. This should not be confused with the summary, which includes only the work of the adult divisions.

General Remarks

On account of necessary readjustments following war conditions, the work has been more difficult and less satisfactory than under normal conditions. Owing to prevailing higher salaries in other lines of work, several of our agents have left for other avocations. Their places are being filled as fast as suitable, available men can be found. The agents remaining with us have been faithful and loyal, and have done a great and valuable year's work.

Farmers, too, have been more or less at a loss to know how best to proceed under present conditions. While prices of most farm crops have been much higher than previously, yet they have been fluctuating. Cost of labor and purchased supplies have also been a great deal higher than formerly. These things have made it difficult for agents to plan their work with farmers, and more difficult for farmers to determine just what is best under prevailing conditions.

The seasons of weather, taken as a whole, have not been as favorable for crop production as for the past two years. This will explain the lower yields reported this year as compared with the two previous years.

Workers and Territory Covered

Outside of specialists, there were engaged in the work during the year, 113 persons, consisting of a State Agent, Assistant State Agent, five white District Agents, one negro District Agent, and one negro supervisor of Negro Boys' Club work. There were 89 white county agents working in as many counties, and 15 negro local agents working in 26 counties. With two exceptions, all the negro local agents were working in the same counties as white agents. These negro local agents were under the immediate supervision of the negro District Agent, although they had advice from white county agents, and came under the general direction of the work in the State.

Kinds and Scope of Work

The work may be divided into three general heads of crops, livestock and miscellaneous. No agent has devoted his entire energies to any one of the three, but most of them, in order to have a well rounded plan of work, have included items under each head.

Crops

The work with farm crops has been done in two ways mainly: First, as furnishing general information and assistance, as far as possible, to all farmers who desired it; and, second, in conducting definite field demonstrations and keeping records of the work to show the value of good methods of farming. These demonstrations not only benefit the farmer who conducts them, but his neighbors as well.

30 BUSHELS OF WHEAT ON ONE ACRE IN WAYNE COUNTY

The following crops have furnished the basis for this class of work: corn, cotton, tobacco, small grains, summer and winter legumes, sorghum, hay, forage and cover crops, sweet and Irish potatoes, truck and garden crops and orchards.

The livestock work has embraced horses, beef and dairy cattle, swine, sheep and goats, and poultry.

Under the head of miscellaneous, the work has been too varied and too large even to name the things involved. The summary at the end of the report will show this, although considerable of the work accomplished, on account of its incidental nature, has not been reported. In fact, it is very difficult to get absolutely full reports of everything done.

Organizations

Much progress has been made in organizing rural communities, and a number of county organizations have been perfected. Agents are finding that, on account of the growth of the work and the demand for it, they can no longer give satisfaction by working with individuals, but must have organizations through which to work.

During the year there have been 218 Farmers' Community Clubs organized, with a membership of 11,931. This now makes a total of 269 Community

Clubs, with a membership of 12,080. Of this number 258 clubs co-operate in demonstration work.

In many instances these community clubs have been brought together into county organizations. This is true in twenty-seven cases.

While organization work has not been phenomenal in growth, yet we feel that it has been substantial, and that the people are really being greatly benefited by working together. These organizations have not all been initiated by county agents, but in many instances the people have seen the need and have taken the lead in organizing.

About half of the agents have sent in county maps showing the character and location of their work in their respective counties. In most of these it is seen that the agents have well rounded plans and are covering their counties with the work.

Co-operative Buying and Selling

Gradually, as the work progresses, this phase also progresses. Not only are organizations needed for buying co-operatively of such staple products as farmers have to buy, but, as larger yields are produced under better methods, the question of marketing grows in importance. Co-operation in selling enables farmers to hold their products under depressed prices, and also gives an opportunity for teaching grading, packing and better methods generally. This feature has a still further value, in that a community is better able to determine the value of products bought and sold, than is the single individual relying on his own judgment.

There are now about 100 organizations in the State engaged in either buying or selling, or both. They handle, co-operatively, such things as lumber, wool, lime, fertilizer, legume seed, small grains, cotton, cotton seed, cotton seed meal, beef and dairy cattle, swine, lambs, etc. The value of the products bought during the past year amounts to a little over one million dollars, with a saving of practically ten per cent on purchases.

Another feature, used mainly on a county basis, is that of Market Bulletin Boards. By having ten or twenty of them well located in a county much buying, selling and exchange of products are brought about among farmers by listing on the board such commodities as they have for sale or want to buy. Half of the white county agents are using this method successfully. The negro agents are beginning to take it up.

CROPS

Corn Growing

Since farmers are still buying corn, the matter of corn growing still needs to be given attention. The most successful methods of corn production are still being advocated, and in addition 1,600 farmers were engaged in demonstrating the methods on over 11,000 acres. The average yield of the 900 reporting is 45.6 bushels, which is over twice the average yield of the State, but about four bushels less than the average yield of corn demonstration plats last year. This is largely due to less favorable weather conditions.

This work gives us ample opportunity for getting farmers to use improved seed by careful selection in their own fields. Over 1,700 farmers were

induced to plant better yielding varieties of corn, and about 10,000 to select seed for next year's planting. It is estimated by county agents that over 20,000 farmers were influenced to use better methods of corn growing during the year.

Small Grains

Our records show that over 3,000 farmers, on 20,000 acres, demonstrated good methods of small grain growing during the year. The average yield of wheat on 1,500 acres was 22 1-4 bushels. Much valuable work was done in the treating of wheat for smut eradication.

Cotton Growing

The 600 farmers who were demonstrating good methods of cotton production, on over 7,000 acres produced an average yield of over 1,400 pounds of seed cotton, or over 100 per cent more than the average yield of the State. These yields demonstrate very clearly what our soil and climate are capable of producing under skillful management.

A valuable feature of cotton growing is the finding of the best variety for a community, and then inducing all the farmers in the community to grow that variety. A dozen agents have started this kind of work. In Hertford County five Farmers' Cotton Breeding Clubs have been organized and started to growing a very desirable strain of cotton for the purpose of furnishing seed for distribution in that section of the State. Since the boll weevil has made its appearance along our southeastern border, the matter of getting suitable varieties of cotton is more important than heretofore. Before the weevil covers our cotton growing territory, we expect to have it covered with the best strains of cotton to grow under weevil infestation.

Along with cotton growing we are getting the best methods of fertilization and cultivation adopted, and in fact using all the agencies that have been found advisable for cotton production, and especially under weevil conditions.

Orchard Work

The main object of this work is to facilitate the growing of a large variety of fruits of early, medium and late types, so as to have fresh fruit in the farm home for as long a period in the year as possible, with a surplus for canning, drying, and preserving for winter use. Of course there will be a further surplus for sale in many cases, but these are not considered commercial orchards. The records show very gratifying progress in this matter, and in assistance given to commercial orchardists.

Livestock

Perhaps the most valuable feature of this work is that of the bringing in of pure blooded sires for breeding up our common stock. There have been over 300 pure blooded bulls, 700 boars and a creditable number of stallions, rams and poultry brought into demonstration territory during the year for breeding purposes.

Purebred Cattle Brought into the State by Effort of Extension Workers

The vital part of the matter is that of the growing of more pastures, and the better feeding of livestock. Our records show good progress along these two lines, especially with the establishment of over 1,980 pastures and the renovation of a large number of old ones. The 98 silos built during the year will help materially in wintering animals, and are especially valuable in the matter of milk production. An effort is being made to get farmers to produce the milk and butter needed for home consumption, and to grow all the pork and poultry needed for family use. In the matter of poultry especial attention is given to properly constructed housing quarters, better general care of poultry, better feeding, including the growing of green feed for winter and the introduction of better laying strains. Outside of the work of Boys' and Girls' Clubs, over 500 demonstrations have been conducted for the teaching of these important principles.

Livestock Diseases and Pests

County agents have rendered valuable service in the way of handling livestock diseases, parasites and other troubles. They usually work in co-operation, and under the direction of competent veterinarians in such matters. By being on the ground and alert, they have checked a number of outbreaks of such diseases as blackleg, tuberculosis and distemper.

Most of the agents now have State licenses for using hog cholera serum. In co-operation with the State and Federal agents, who have furnished the technique for this work, hog cholera has been kept under control, in many cases reduced, and in some instances entirely eradicated. Farmers are being taught the value and proper use of serum and the diagnosis of cholera, so that many of them handle the matter themselves, and also assist their

neighbors in keeping the cholera under control. Ordinary troubles, as worms, lice and ticks are being handled very satisfactorily. The records show that over 7,000 animals were treated for these troubles during the year.

Manures and Fertilizers

Under this head the work has largely been that of adapting the fertilizer and stable manure to the soil and crops. The work of our test farms throughout the different sections of the State is indispensable in this matter, as well as in a number of others. The definite facts determined by these stations are carried to the farmers in the several districts where the test farms are located. Much attention has been given to the matter of the purchase and mixture of materials at home in order to get just the fertilizer analysis needed. This results also in the saving of satisfactory amounts to farmers on each ton of fertilizer used. Stable manures are being supplemented with acid phosphate to produce a better balanced plant food.

FARM AND FARMSTEAD IMPROVEMENTS

The work under this head has been very extensive and valuable, showing that farmers are making progress in the matter of better equipped farms and homes. The work accomplished cannot be discussed in detail here, but attention is called to the following items as indicative of what has been accomplished by the advice and assistance of county agents: water systems installed, 205; lighting systems installed, 1,346; homes screened, 6,943; toilets erected, 11,844; telephone systems installed, 5,402; new home gardens started, with improvement of others, 14,368.

Miscellaneous

This shows mainly such things as travel, visits made and lectures and discussions engaged in. Attention is called especially to 6,429 meetings held, with an attendance of 372,863 people. This, of course, does not include 80,861 people reached as individuals, nor 89,793 office and telephone consultations, 144,277 people reached by personal letters and 88,656 by circular letters. This makes a total of 779,450, in addition to 126,016 bulletins sent out. Under this head much incidental work that is unaccounted for has been accomplished. It is impracticable for extension workers to keep full records of all their work.

Negro Work

(By Negro Agents with Adults)

Probably the main feature of this part of the work has been to induce negroes to be self-reliant, self-supporting and to improve their farm and home conditions. Until they become independent of purchased food and feed crops at exorbitant prices they cannot make much progress with other things.

The Negro District Agent, L. E. Hall, has been faithful and hard-working in his efforts to be of service to the people of his race. He has especially persevered in his teaching of the growing of home supplies. He

has written a song on this topic, is teaching it to his people and getting it sung with much effect, as supplemental to his other efforts. It runs about as follows:

"Some say we should make money
And buy our home supplies,
But experience and science both teach us
They would deceive with lies.

CHORUS

We'll grow our home supplies;
We'll grow our home supplies:
We never expect to give the struggle over,
But grow our home supplies."

On the whole, negro work is making splendid progress. The interest and enthusiasm in which negro farmers take up better methods of agriculture and home-making, and the docility which they show, is very gratifying. Their demand for assistance is so large that we cannot, with our present force, give them the service asked for. In most of the counties where negro work is under way negroes have readily raised among themselves the amounts asked for as supplemental to other funds for conducting the work.

One noticeable feature of the work is the growth of credit unions among negro farmers by which they raise their own funds for financing their farm work. They realize that interest paid on borrowed money or for supplies purchased on credit is entirely too high. Their object is to get from under the mortgage system. Two of the local agents have organized and put into operation fifteen credit unions for this purpose.

Aside from regular supervisory work, District Agent Hall has addressed many negro farmers' conferences, summer schools and institutes. It is reported in one county that as a direct result of discussions at a negro farmers' congress ten schoolhouses have been built, 800 acres of land purchased, crop yields increased and many homes improved.

Boys' Club Work

(White)

Since coming here as Assistant State Agent and Supervisor of Boys' Agricultural Clubs last January, H. H. B. Mask has worked hard and successfully in getting the club work on a more satisfactory basis. At that time the interest in the work had declined considerably and it was not in a very satisfactory condition. It will take several months longer for Mr. Mask to perfect the reorganization in the whole State, but by the energy and interest he is displaying in it, it is felt that the clubs will soon be doing splendid work. Mr. Mask's report, which follows, gives in detail the accomplishments for the past year. One thing that is helping to put better agricultural principles into the minds of the boys is a song which is being taught to club members. It is given here to show the agricultural sentiment which it contains:

BOYS' AGRICULTURAL CLUBS SONG

O, come on, boys, join in a song
With much hilarity;
And we will show what we can grow
By brain celerity.
Hooray! Hooray! for brain celerity;
Its power is great in any State,
To bring prosperity.

(Corn Club)

We'll grow the corn within our State,
To furnish all we need;
Then we'll not buy at prices high,
But have a plenty feed;
Hooray! Hooray! We'll have abundant feed;
For if we toil on our good soil,
We'll have the corn we need.

(Dairy Club)

Good grass will grow throughout our State
On mountain, hill, and lea;
And cows eat grass, while on they pass,
And chew at night, you see.
Hooray! Hooray! Our cows will pay us well;
For they'll supply what urbans buy,
And make our pockets swell.

(Pig Club)

Our pigs will grow into big hogs,
On pastures where they roam;
So we won't buy side-meat so high,
But grow our pork at home.
Hooray! Hooray! Oh, we won't have to buy;
We'll grow fine hams to eat with yams,
For these will satisfy.

(Poultry Club)

Poultry and eggs are wholesome food,
That have a rural charm;
So we'll live well and only sell
The surplus from the farm.
Hooray! Hooray! Oh, we shall all live well:
For home-grown crops will be the props
That hold us for a spell.

(Rotation and Diversification)

With sheep and goats, and wheat and oats,
Potatoes, geese and rye;
Vetch, clover, peas, alfalfa, bees,
"Rotation" is our cry.
Hooray! Hooray! The State will be our pride;
For we'll rotate, be up-to-date,
With Crops Diversified.

(Results)

So with these things we'll build us homes,
In our old State so grand;
We'll educate, emancipate,
And own our homes and land.
Hooray! Hooray! We shall be glad and free;
We'll build a State with people great,
Through brain celerity.

(Gratitude)

Then three cheers for that peerless sage,
Who taught us wisdom's ways;
We owe to him a diadem,
So ever sing his praise.
Hurrah! Hurrah! For S. A. Knapp, Hooray!
His Ten Commands save homes and lands—
Hurrah! Hurrah! for aye.

Things learned in song are some of the permanent parts of our teaching.

A detailed report on Boys' Agricultural Club work prepared by H. H. B. Mask, Assistant State Agent, follows:

ORGANIZATION

Boys' club work was placed under the supervision of the State Farm Demonstration Agent at the beginning of this year. This, no doubt, is the proper place for it. Club work has been, and if properly conducted, will continue to be, a forerunner for better agriculture and agricultural methods, as well as being a wonderful factor in the life of the boy on the farm; therefore club work should be made an essential part of county agent work.

Special Club Force Reduced

The entire plant club force had resigned at the beginning of the year to go into other lines of work. The office was left vacant until March 12, when S. J. Kirby was appointed as specialist in plant clubs. In March J. E. Moses, Swine Extension Specialist, and State Pig Club Agent, and J. C. Anthony, Assistant Pig Club Agent, resigned. This left the entire swine extension and pig club work to W. W. Shay. It has been a physical impossibility for Mr. Shay to meet the demands made upon him in this work.

On the first of July, E. G. Warden, Assistant Poultry Club Agent, resigned to go into investigational work, leaving all poultry club work to Allen G. Oliver, State Poultry Club Agent. These resignations reduced the force

from seven to three. These positions could not be filled, owing to a scarcity of funds brought on by the discontinuation of the emergency appropriation. Our work, therefore, has been greatly crippled.

Organized Clubs

The duties of the county agent have become so numerous that it was decided to discourage the scattered enrollment of club members, and confine the efforts of the county agent in club work largely to organized clubs. This plan has many advantages. It takes less of the agent's time, as compared to the scattered method of conducting the work; better supervision is secured; it develops community spirit, leadership, and offers many social advantages so greatly needed in most rural sections of the State. The task of organizing such clubs in each county of the State proved to be too great, with our State force reduced, and the methods being new to many of the agents.

The following county agents were the most successful in the organization of such clubs: C. C. Proffit of Rutherford; W. L. Smarr of Lincoln; J. W. Bason of Warren; U. A. Miller of Alexander; J. C. Anthony of Harnett; R. D. Goodman of Cabarrus; F. G. Tarbox of Halifax; W. G. Yeager of Davidson; M. W. Wall of Northampton; E. S. Vanatta of Orange; D. L. Latham of Onslow; N. K. Rowell of Chowan, and R. E. Lawrence of Transylvania. Monthly meetings were held for the study of literature and problems of club work in general. These meetings offer great advantages in a social way, as well as development in leadership.

Club Demonstrations

The same club demonstrations were used this year as in previous years, namely: corn, cotton, peanuts, potato, small grain, soybean, pig, poultry, calf and sheep. The poultry club has the largest enrollment, with pig second and corn third. Mr. Oliver is doing splendid work in interesting boys and girls in poultry work on the farms. They are being taught the importance of early hatching, proper methods in feeding baby chicks and laying hens, housing, judging, exhibiting, grading, packing, and marketing.

Remarkable results have been secured in Catawba County where the work has been conducted for five years. It is estimated that the county sells over $30,000 worth of chickens and eggs per month. Established cream and egg routes are maintained throughout the county, the eggs and cream being gathered from one to three times per week and delivered to the creamery. They are then collected and shipped in car lots to the largest markets. A whole car of live birds was shipped from this county this spring.

Other counties are making similar progress. The time will be, if the work is continued, when North Carolina will rank among the first states in the union in poultry production. The work done with the boys and girls, under the efficient supervision of Mr. Oliver, is not temporary or superficial, but becomes a permanent part of the farm operation.

Club work has done more than any other one agency in stocking North Carolina farms with better hogs, and placing thousands of pure-bred registered sows and boars in various sections of the State. "The big problem now is better feeding methods, housing and management," says Mr. Shay. We are planning for club work to do its share in bringing these things to pass.

Concrete Demonstrations

Mr. Shay has started some definite demonstrations to show the value of proper feeding, housing, breeding and management. A good, well-bred sow, pig or bred gilt is secured to start with. Four acres of land are placed under fence for permanent pasture and for a succession of grazing crops; a modern hog house and a self feeder are installed; and instruction in feeding and management is furnished each member. Some ten or more of these demonstrations are already in operation, while others are being started. These demonstrations are to be extended over a number of years. We believe they will prove valuable to farmers interested in hog raising. Mr. Shay furnishes instructions in feeding and management, and gives demonstrations in the construction of houses, self feeders, and judging. Assistance has been given county agents in securing pigs for new club members, and in selling pigs for old members.

In Iredell and Transylvania counties, where pig club work was started some two or more years ago, co-operative carload shipments have been made during the year. Previous to the introduction of club work in these counties there was not a sufficient supply of meat grown to furnish local demands.

In plant club work, although our enrollment is small, we have been making progress in the way of production per acre. The average yield of corn reported last year was forty-nine bushels. This year it is fifty-nine. Five boys made an average of over 100 bushels to the acre. Mr. Kirby has given instructions in soil preparation, seed selection, cultivation, harvesting, marketing, and judging the various products. Buncombe County corn club members averaged over seventy-seven bushels per acre. In cotton, the average yield was 814 pounds of lint per acre. In Irish potatoes, Yancey County reports a yield of 272 bushels per acre.

County Encampments

During the year, twenty or more county encampments were held. These encampments were from two to three days duration. The boys and girls were brought together in this way for recreation, inspiration and instruction. During August, the Boys' State Short Course was held at West Raleigh, at which one hundred and twenty-five boys from various parts of the State were present. The number in attendance was greatly reduced by the scarcity of labor on the farm.

Fairs

The boys' and girls' clubs have loyally supported our State, county and community fair programs this year. Their exhibits are almost always excellent and therefore have an important educational value. An outstanding example of this was at the Onslow County Fair, where the only registered, well-bred, and properly conditioned hogs were shown by the boys' pig club. One of the main features of practically every fair in the State was the poultry club exhibit directed by Mr. Oliver. A solid car of club products was sent down from Catawba County to the State Fair.

Boys' and girls' judging contests at the fairs not only aid in training the boys and girls to be better judges of agricultural products, but emphasize to the farmer, as well as the public at large, the need for more agricultural education and efficiency.

Financial and Moral Support

The support given club work is very gratifying indeed. Banks, chambers of commerce, business men, and fair associations have liberally supported it. Large amounts of money can be secured to purchase livestock and feed for club work. Liberal prizes and awards have been contributed for the promotion of the work.

Teachers, superintendents of schools, farmers, and other public spirited men, as well as the people mentioned above, have supported and encouraged the work in many ways.

RESULTS OF BOYS CLUB WORK—Crops

Club	Enrollment	Complete Reports	Total Production	Average Yield Per Acre	Average Cost Per Bushel	Total Cost	Total Value	Total Profit	Members Making 100 or More Bushels Per Acre
Corn	898	184	14,120	59	$ 0.55	$ 7,187	$24,236	$17,310	5
Peanut (nuts)	137	7	459	52	.67	965	2,846	1,982	2
Potatoes:									
Irish	93	52	693	153	.58	284	847	557	7
Sweet	23	9	571	219	.72	323	1,081	657	9
Wheat	27	4	49	19	1.00	33	74	41	----
Beans (hay)	139	12	127	3	----	108	1,116	708	----
Cotton:									
Lint	105	11	814	1,934	7.60	933	1,888	1,302	----
Seed	9	5	11,132	2,286	11.30	315	1,351	930	----
Miscellaneous	14	12	----	----	----	1,281	5,879	4,597	----
Total	1,446	296	----	----	----	11,429	39,318	28,084	23

ESTIMATES

Clubs	Members Not Reporting	Estimated Total Production (Bushels)	Estimated Total Value of Crop
Corn	814	39,786	$ 71,654
Peanut (nuts)	93	2,289	6,374
Potatoes:			
Irish	57	2,104	3,666
Sweet	10	723	885
Wheat	6	143	345
Soybean (hay)	9	14 tons	420
Cotton:			
Lint	85	45,355 lbs.	14,060
Seed	4	14,170 bus.	14,170
Miscellaneous	4	----	1,784
Total	1,082	----	$ 112,258

RESULTS OF BOYS CLUB WORK—Livestock

Clubs	Enrollment in Clubs	Number of Complete Reports	Total Number of Animals	Total Final Weight (Pounds)	Average Cost Per Pound	Total Cost	Total Value	Total Profit
Pig—								
Fattening demonstration	777	87	436	21,971	$ 0.13	$2,491	$3,432	$ 2,165
Growing demonstration	573	109	512	15,884	.11	2,557	9,983	5,614
Sow and litter demonstration	334	84	528	19,102	.11	2,807	8,055	4,133
Sheep—Demonstration	22		60					
Beef Calf—								
Fattening demonstration	8							
Growing demonstration	8		4					
Dairy Calf—Growing demonstration	33		5				131	104
Poultry—Demonstration	3,885	130	13,599				18,652	2,789
Total							40,252	14,805

ESTIMATES

Clubs	Number of Members Not Reporting	Estimated Total Number of Pounds	Estimated Total Value of Livestock
Pigs—			
Fattening demonstration	339	64,110	$ 32,315
Growing demonstration	290	35,450	10,252
Sow and litter demonstration	261	46,079	15,147
Sheep—Demonstration	1	100	30
Beef Calf—			
Fattening demonstration	60		
Growing demonstration	4		160
Cow-calf demonstration	1		60
Dairy Calf—Growing demonstration	1		42,717
Poultry—Demonstration	3,755	72,096	
Total			$ 100,671

Summary of Activities of Workers

Number of workers—5
Lectures—60
Total Attendance—60,075
Miles traveled by rail—39,922
Miles traveled by auto and team—13,953
Club members and farms visited—1,853
Letters written—3,486
Circular letters—54
Bulletins and Circulars distributed—27,940

County encampments attended—16
Total enrollment in Plant Clubs—1,345
Total enrollment in Animal Clubs—5,640
Total value plant products reported and estimated.....$151,576.00
Total value animal products reported and estimated..... 140,923.00
Total value plant and animal products combined..... 292,181.00
Total profits, plant and animal products produced..... 42,889.00

Negro Boys' Club Work

This part of the work, under the supervision of J. D. Wray, is progressing very satisfactorily and successfully. In addition to what the local negro agents do in the matter, a large number of clubs have been organized in other territory. Most of these are in co-operation with negro school teachers and school supervisors.

As we see it, negro boys on the farm need much training in farm work to enable them to make successful farmers, or even do satisfactory farming for others. Along with their technical education, they need the agricultural training which they get in the club work. They enter the clubs with enthusiasm, and follow well the methods which we are teaching them. The following report of John D. Wray, Farm Makers' Club Agent, shows more in detail, the accomplishments of the past year.

The negro boys' and girls' club work in North Carolina is fulfilling the purpose for which it was intended. It is revolutionizing the methods of farming among negroes in many sections of the State. The lectures given in connection with meetings and demonstrations made by children in the corn, pig and poultry clubs and a comparison of the yields under identically the same conditions, but by entirely different methods of cultivation and fertilization, have made an indelible impression upon the minds of the adult farmers. In many cases, it has thoroughly convinced them that there is a better way to farm. They have seen the folly of cultivating large areas and reaping small returns.

They have learned that a smaller acreage, plowed deeper, manured and fertilized heavier, with good seed and thorough cultivation, means less work, more products, more profit and a great deal more pleasure. They have also seen the advantage of better livestock, coupled with better attention, by watching the methods used among the boys and girls. Many of the farmers have tried the methods given the club members, and have come to the meetings jubilant over the results obtained. Many of them are now putting their children into the clubs for the purpose of getting instructions through them to be used on their farms. We are often called upon, especially in the country, and sometimes in town, to make agricultural talks in churches. Although a little reluctant to do it at times, we dare not question the wisdom of our spiritual advisor, the preacher, who frequently cuts his sermon short to give us a chance to speak. They announce our meetings, help organize the farmers and voice their approval of our work on every hand.

The work has created such an agricultural stimulus that it is absolutely impossible to meet the engagements that are requested by teachers, ministers and farmers, to be filled. So we need more help, or the work

will suffer. If the proper supervision is given the club work, it will necessarily dispense with some of our meetings. This will be a disappointment to the farmers. Of course, we can meet both the club members and the farmers at the same time, but that will not take the place of a personal visit, because the personal touch is the thing that counts in this work. Therefore, if the demand for meetings is met, in which the farmers say we have done great good by giving scientific agricultural instruction, it must be done at the expense of personal supervision. And, yet, we must bear in mind, that the success of the work depends upon the good will of the farmer. So it can clearly be seen that more help is the only solution of this problem.

Some Striking Effects of the Work

At Gray's Creek, in Cumberland County, where we lectured and organized a pig club, we stressed the advantage of improved breeds. In less than 30 days we were called back to this place by the farmers of that community. At this meeting we laid more stress on improved breeds of milk cows. At the conclusion of the talk, a prominent minister rose in the audience and said, "I was not here when you lectured before, but I was told what you said, Sir, and understood for the first time why I had fed a few little knotty pigs for a year that remained the same size. I simply took my axe and knocked every one of them in the head. Since then, I have purchased two pure-bred Duroc Jersey pigs and have a third one engaged. Now, since we have heard your discussion about improved breeds of milk cows, I wish to say that we have one of the poor type, but we are going home and dispense with her and get one worth while. These talks you have made here, Sir, are worth thousands of dollars to us, and we thank the government for sending you here."

In one of our meetings at Lytle Grove, in Mecklenburg County, Prof. I. D. L. Torrence, a prominent school teacher and farmer, arose in the meeting and said: "The influence of the club work, and the meetings held here from time to time, caused the purchase of over 700 acres of land in the past two years and has stimulated educational activity to the extent that ten new schoolhouses have been built in this county." He declared that it was impossible to estimate the value of such work. In Bertie County, one farmer said that he had reduced his acreage from 40 to 14. Before, he had to buy corn, but now he has it to sell. Another explained how his boy made more on one acre than his father did on twelve. Others say they have not bought any corn since their boys became members of the corn club. Still another farmer stated that he had reduced his acreage from 120 to 28, and was using the same horse power and was making more on his farm than he ever had in his life.

At one point near Rockingham, we made an address in which we criticised the people for having such a poor school house, and in less than a year's time we were invited back to take part in the dedication of a beautiful $1,800 building. At Wise, N. C., in a similar address, we criticised the people severely for having such a poor school building. About one year from that time, I was invited back to take part in a program of breaking the ground for a $6,000 building on a site including

six acres of land. These are just a few of the many cases of this kind that might be mentioned. In addition to this, however, we have assisted in the organization of over fifty farmers' unions in which there are hundreds of farmers who have requested special instructions about how to do better farming. They are engaged in co-operative buying and selling. We found that just a little information given now and then will keep these organizations going. Some of them have reported as much as $1,000 saved in one deal. One organization at Oakridge, in Guilford County, has organized a company and is now selling fertilizer to the whole community. We have nothing to do with the business side of these organizations, save to give advice when called upon. They are splendid mediums, however, through which we can work with the farmers and their children. In addition to this, we have organized County Agricultural Conferences and a State Farmers' Congress. In all of these meetings, we meet the farmers and their children together. Before closing this communication, we wish to acknowledge with highest appreciation, the co-operation and assistance of L. E. Hall, our Negro District Agent.

It should be stated that there are no negro local agents in the counties where these striking events, referred to above occurred.

	Enrolled	Complete Reports	Incomplete Reports
Corn Club	623	200	123
Pig Club	502	122	93
Poultry Club	1,016	205	287
Peanut Club	154	3	17
Cotton Club	72	72	
Sorghum Club	12	11	1
Oat Club	18	1	9
Tobacco Club	1	1	
Wheat Club	23	14	6
Potato Club	119	30	73
Hay Club	31	12	7
Canning Club	8	2	
Calf Club	17	17	
Saturday Service League	423		423
Full totals	3,010	690	1,038

VALUE OF PRODUCTS PRODUCED—COMPLETE REPORTS

Corn produced, 12,494 bu. at $2.00	$24,988.00
Cotton produced 151 1-2 bales at $200	30,900.00
Wheat produced, 887 bu. at $3.25	2,852.25
Oats produced, 81 bu. at $1.00	81.00
Cowpeas produced, 35 bu. at $3.00	105.00
Hay produced, 19 1-2 tons at $50.00	975.00
Potatoes (white) 3,590 bu. at $2.00	8,980.00
Peanuts, 394 bu. at $3.00	1,182.00

Tobacco, 600 lbs. at 25c	150.00
Sirup, 235 gallons at $1.00	235.00
Canned fruit, 200 qts. at 25c	50.00
One hundred seventy-six pigs at $10.00	1,760.00
Ten yearlings at $25.00	250.00
Three hundred and sixty hens at $2.00	720.00
Four hundred and seventy-seven dozen eggs sold at 60c	286.00
One calf sold at	45.00
Chickens raised, 4,229 at $1.50	6,371.00
Pork raised, 23,145 lbs. at 25c	5,786.00
Total value of products in complete reports	$85,716.25

INCOMPLETE OR ESTIMATED REPORTS

Corn, 4,920 bu. at $2.00	$ 9,840.00
Wheat, 112 bu. at $3.25	364.00
Oats, 500 bu. at $1.00	500.00
Hay, 15 tons at $50.00	750.00
Potatoes, 500 bu. at $2.00	1,000.00
Peanuts, 102 bu. at $3.00	306.00
Pork, 3,730 lbs. at 25c	802.00
Total value of estimated reports	$13,562.00

Average production per acre of corn, complete reports	62 1-2 bu.
Average production of corn per acre, incomplete reports	40 bu.
Average yield of complete and incomplete reports	51.25 bu.
Average cost of corn per bu.	$ .60
Average cost of wheat per bu.	1.25
Average cost of potatoes per bu.	.83
Average cost of peanuts per bu.	1.50
Average cost of cotton per acre	61.68
Average cost of hay per ton	10.00
Average cost of pork per pound	.15½
Average cost of raising chickens per bird	.73

ACTIVITIES OF AGENT—(Visits)

Dems. 16; Club-Mem. 282; Rural Super. 35; Schools 67; Meetings 181; Attendance 64,874.

Mileage

Rail, 11,751; Auto, 1,413; Team, 300—Total 13,464.

Letters 1,863; Cir. Letters 21,090; Cards 21,105; Bulletins 8,824; Buttons 190; Visitors 338; Placards 289.

It is interesting to note in the above that the members of "Uncle Sam's Saturday Service League" have a very creditable report. Some of the best negro farmers in the State were members of this league, and lived up to their pledge. Many of these farmers were truck farmers, and, of course, they have given the products of their gardens in which they

spent their Saturday afternoons. They do not know the exact production of their Saturday's work. They simply reported the total production of their gardens, farms, etc. Fifty-one of these produced from $1,000 to $8,500 worth of products. The 423 members who remained loyal through 1919 are to receive certificates, with beautiful agricultural designs at the top, a description of their loyalty in the center with the signature of the Governor of North Carolina and other prominent State Officials at the bottom, as a token of appreciation for the part they played in producing food to win the World War, and to help feed the starving millions of Europe.

SUMMARY OF NEGRO DEMONSTRATION WORK BY NEGRO AGENTS, 1919

County Organizations

Number of central county organizations, 2
Number of community clubs organized, 35
Number of community clubs in demonstration territory, 146
Number of clubs dependent on county agents, 6
Number of clubs having community plans, 3

Co-operative Buying and Selling

Value of stuff bought co-operatively, $31,799.58
Amount saved by buying co-operatively, $2,808.17
Number of agents keeping bulletin boards, 2
Number using Market News Service. 5

	Crops	Acreage	Average Yield
Number of corn demonstrators	532	4,564	40.6 bu.
Number of cotton demonstrators	136	851	1,203 lbs.
Number of tobacco demonstrators	70	365	1,050 lbs.
Number of small grain demonstrators	927	4,277	
Number of hay and forage demonstrators.	75	149	1 1-2 tons
Number of summer legumes dems	424	1,754	2 2-3 tons
Number of Irish potato demonstrators	25	36	80 bu.
Number of sweet potato demonstrators	127	152	198 bu.
Totals	2,316	12,148	

Orchards

Number of orchards inspected	93;	Number of trees	3,630
Number of orchards pruned	333;	Number of trees	9,927
Number of orchards sprayed	134;	Number of trees	2,059
Number of orchards wormed	238;	Number of trees	2,836
Number of orchards planted	136;	Number of trees	2,906
Totals	934		21,358

Number of commercial orchards cared for, 1
Number of commercial trees sprayed, 625; pruned, 2,057; wormed, 843
Totals.....3,525

Horses

Number brought in: mares, 20
Number of demonstrations in feeding, 17; animals, 25
Number fed and cared for, 17

Dairy Cattle

Number of pure-bred brought in: bulls, 6; cows and heifers, 154
Number of grade dairy cows, 113
Number of cows tested, 3; Babcock testers, 1
Number feeding better balanced rations, 101
Number of stock so fed, 199
Number of demonstrations in dairy work, 18; cows, 18
Number of pure-bred dairy bulls: formerly, 14; now, 20
Number of pure-bred dairy cows: formerly, 54; now, 208

Hogs

Number of pure-bred brought in: boars, 17; sows, 58
Number of herds started, 20
Number of hog feeding demonstrations supervised, 54
Number of hogs in these demonstrations, 275
Number of records kept of them, 2
Number of hog pastures started, 98
Number of farmers started with grazing crops, 486
Number of hogs fed or cared for by agent's advice, 4,840
Number of pure-bred boars: formerly, 18; now, 35

Poultry

Number of poultry demonstrations, 66
Number of each kind: chicken, 252,950; ducks, 0; turkeys, 857; guineas 500; geese, 0. Total.....254,307
Number of farms improving methods, 762; birds, 22,903
Number of farmers producing non-fertile eggs, 59
Number of eggs so produced, 3,750 dozen; average price per dozen, 50c.

Livestock Diseases and Pests

Number of head treated:
Cattle: for tuberculosis, 0; lice, 85
Hogs: for cholera (single), 28; simultaneous, 43; worms, 0; lice, 0; digestive, 57
Horses: for distemper, 10; other, 2
Number of above treated by agents:
Hog cholera, 28
Number having instruments for treatment, 2

Fertilizers

Number of farmers advised concerning, 4,255
Number of fertilizer demonstrations conducted, 290
Number of tons used on them, 350
Number of communities buying co-operatively, 44
Amount bought co-operatively, 3,564 tons
Number of farmers home-mixing, 115; saved per ton, $6.11
Number of farmers top-dressing at agents' suggestion, 2,221

Manures

Number of farmers induced to take better care, 1,612
Number of farmers providing sheds by agents' advice, 772
Number of manure spreaders bought, 46
Number of manure spreaders agents helped to place, 3
Number of farmers using phosphate as reinforcement, 392
Number of tons (estimated) being saved in demonstration territory, 398,438 .

Lime

Number of farmers using by agents' advice, 145
Number of tons used, 366 (burnt lime, 115; limestone, 251)

Farm and Farmstead Improvements

Number of buildings erected, 98
Number of farm buildings improved, 119
Number of building plans furnished, 23
Number of buildings painted or whitewashed, 140
Number of home water systems installed, 13
Number of home water systems: formerly, 50; now, 63
Number of lighting systems installed, 27; formerly, 745; now, 772
Number of grounds improved, 796
Number of sanitary conditions improved, 1,373
Number of homes screened, 1,051
Number of sanitary privies erected, 985
Number of farmers induced to plan and use rotation, 269
Total acreage in such rotations, 3,629
Number of new pastures established, 33; acres, 69
Number of old pastures renovated, 45, acres, 220
Number of drainage systems installed, 3
Number of farmers induced to drain all or part of farms, 175
Number of acres so drained by tile, 0; by ditches, 5,478
Number of farmers induced to remove stumps, 97
Number of farmers induced to terrace land, 85; acreage, 1,071
Number of home gardens planted, 2,921
Number of farmers induced to save surplus products, 3,105
Number of road improvement demonstrations assisted in, 11
Number of miles resulting therefrom, 56
Number of farmers planting cover crops, 1,674
Number of implements and tools bought: binders, 6; hay presses, 6;

gas engines, 20; 2-horse cultivators, 16; tractors, 0; motor trucks, 9; corn planters, 57; mowers, 46; grain drills, 25; disk harrows, 69; 1-horse cultivators, 112; plows, 69; hay rakes, 16; spraying machines, 39; manure spreaders, 2; small tools, 2,053.

Miscellaneous Extension Work

Number of visits by agents to demonstrators	3,439
Number of visits by agents to co-operators	1,545
Number of visits by agents to other farmers	2,374
Number of visits by agents to business men	401
Number of visits by agents to Boys' and Girls' Clubs	1,538
Total	9,297
Number of miles traveled (by railroad)	18,118
Number of miles traveled (by team)	23,316
Number of miles traveled (by auto)	9,272
Number of miles traveled (otherwise)	9,641
Total	60,347
Number of calls on agent at office or home (personal),	3,915
Number of calls on agent at home or office (telephone),	153
Number of farmers' meetings held by agent or Extension Division	780
Number of meetings addressed by agents, 1,021; attendance	73,445
Number of field meetings held by agents, 86; attendance	1,457
Total attendance	74,902

Per cent of time spent in office, 20

Per cent of time spent in field, 80

Number of official letters written, 5,631

Number of articles written for publication, 47

Number of circular letters sent out, 1,152

Number of United States Department of Agriculture bulletins mailed, 5,064

Number of State College and State Department bulletins mailed, 3,165

Number of visits to schools, 386

Number of times assisted in school plans, 29

Number of extension or short courses assisted in, 1

Total attendance at such schools, 450

Number of days spent in such schools, 4

Number of boys induced to attend schools or colleges, 55

Number of visits by specialists to agents, 24

Number of county fairs held, 6

Number of demonstrators, co-operators and club members with exhibits, 43

Number of demonstrators in truck farming, 31

Number of farmers keeping cost records: complete, 36; partial, 377

Number of farmers practicing fall plowing, as result of agents' work, 1,206

Number of farmers selecting seed, 1,588

Number of farmers growing improved seed for sale, 74
Number of wood lots improved by agents' suggestion, 36
Number of farmers induced to grow sorghum or sugar cane for sirup, 1,721

SUMMARY FARM DEMONSTRATION WORK, 1919

(This includes all the work done with white and negro adults, but does not include any club work.)

Organizations

Number of central county organizations, 29
Number of community clubs organized, 253; membership, 12,975
Number of community clubs in counties, 329, membership, 13,797
Number of community clubs dependent on county agents, 24
Number of community clubs having definite plans, 25
Number of counties thoroughly organized, 19

Co-operative Buying and Selling

Number of farmers' organizations buying and selling co-operatively, 100
Value of stuff bought co-operatively, $1,111,851
Saved by buying co-operatively, $110,032
Number of agents keeping bulletin boards, 44
Number of agents using Market News Service, 57

Crops	Dems.	Acreage	Average Yield
Number corn demonstrators	1,664	11,200	45.6 bu.
Number cotton demonstrators	663	7,320	1,400 lbs.
Number tobacco demonstrators	283	1,019	950 lbs.
Number small grain demonstrators	3,177	21,728	
Number hay and forage demonstrators	2,928	10,861	2 tons
Number summer legume demonstrators	2,290	14,914	2 tons
Number Irish potato demonstrators	194	590	136 bu.
Number sweet potato demonstrators	314	606	194 bu.
Totals	11,513	87,943	

Orchards

Number of orchards inspected	2,559;	Number of trees	186,424
Number of orchards pruned	2,402;	Number of trees	142,847
Number of orchards sprayed	1,240;	Number of trees	142,650
Number of orchards wormed	755;	Number of trees	42,333
Number of orchards planted	531;	Number of trees	34,950
Totals	7,487		549,204

Number of commercial orchards agents assisted in caring for, 91
Number of trees sprayed, 15,226; pruned, 34,466; wormed, 6,961
Total 56,653
Totals: Orchards.....7,578; Trees.....605,857

Horses

Number of pure-bred brought in: stallions, 9; mares, 59
Total 68
Number of demonstrations in feeding, 46; animals, 131
Number fed and cared for, 1,373
Number formerly: stallions, 28; jacks, 32
Number now: stallions, 77; jacks, 84

Dairy Cattle

Number of pure-bred brought in: bulls, 212; cows and heifers, 1,041
Number of grade dairy cows, 798; cows tested, 400
Number of Babcock testers, 32
Number feeding better balanced rations, 279
Number of stock so fed, 3,888
Number of demonstrations in dairy work, 38; number cows, 504
Number of creameries established during year, 12
Number of pure-bred dairy bulls: formerly, 261; now, 926
Number of pure-bred dairy cows: formerly, 1,443; now, 3,847
Number of cream routes established during year, 15
Number of dairy breeders, 39

Beef Cattle

Number of pure-breds brought in: bulls, 108; cows and heifers, 263
Number of grades brought in, 523
Number of beef-breeding herds started, 126
Number of feeding cattle brought in, 1,369
Number of feeding cattle brought in, 1,369
Number of beef feeding demonstrations conducted, 35; cattle, 99
Number of beef cattle cared for by agents' advice, 1,430
Number of pure-bred bulls: formerly, 146; now, 432
Number of beef cows: formerly, 207; now, 1,463

Dipping Vats

Number of vats built during year, 44
Number agents helped to build, 12
Number agents helped to fill, 105
Number agents helped test solution for, 25
Number built by all forces, 227
Total number now, 446
Number of cattle dipped during year, 29,475

Hogs

Number of pure-breds brought in: boars, 721; sows, 1,406
Number of herds started, 671
Number of hog feeding demonstrations supervised, 424
Number of hogs in these demonstrations, 3,766
Number of records kept of them, 107
Number of hog pastures started, 2,973

Number of farmers started with grazing crops, 4,525
Number of hogs cared for or fed by agents' advice, 48,091
Number of pure-bred boars: formerly, 2,437; now, 5,257

Sheep and Goats

Number of pure-breds brought in: rams, 125; ewes, 339
Number of grades brought in, 682
Number of flocks started, 162
Number of sheep feeding demonstrations supervised, 37; sheep, 596
Number of farmers induced to grow grazing crops, 179
Number fed or cared for by agents' advice, 3,337
Number of pure-breds: formerly, 426; now, 1,085

Poultry

Number of poultry demonstrations, 423
Number of each kind: chickens, 285,786; ducks, 286; guineas, 786; turkeys, 1,734; geese, 66; total, 289,002
Number of farmers improving methods, 3,757; birds, 94,013
Number of farmers producing non-fertile eggs, 301
Number of eggs so produced, 17,935 dozen; price per dozen, 50 cents
Number of communities having same breed of fowls, 31
Number of cream routes collecting eggs, 11

Livestock Diseases and Pests

Number stock agents, extension workers and others have induced farmers to have treated for diseases or pests in demonstration area:
Number of cattle: for blackleg, 2,858; anthrax, 475; tuberculosis, 6,057; digestive and other troubles, 15,986
Number of hogs: for cholera (single), 18,227; simultaneous, 48,012; worms, 10,228; lice, 50,576; mange, 8,311
Number of sheep: for worms, 1,180; grubs, 45; scabs, 880; ticks, 630; digestive and other troubles, 595
Number of horses: for distemper, 73; digestive troubles, 182; accidents, 100; charbon, 2; other troubles, 135
Number of above treated by agents:
Cattle: Blackleg, 2,257; anthrax or charbon, 0; tuberculosis, 247
Hogs: Cholera, 42,181
Horses: Charbon, 10
Number of agents having instruments for treatment, 46

Fertilizers.

Number of farmers advised concerning, 34,715
Number of fertilizer demonstrations conducted, 2,094
Number of tons used on them, 3,917
Number of communities buying co- operatively, 226
Amount bought co-operatively, 17,759 tons

Amount saved, $46,932; per ton, $2.64
Number of farmers home-mixing, 5,200; saved per ton, $4.17
Number of farmers top-dressing at agents' advice, 10,149

Manures

Number of farmers induced to take better care, 8,685
Number of farmers providing sheds by agents' advice, 1,105
Number of farmers composting by agents' advice, 4,642
Number of manure spreaders bought, 735
Number agents helped to place, 182
Number of farmers using phosphate as reinforcement, 11,417
Number of tons (estimated) being saved in the State, 1,383,758

Silos

Number built this year, 98
Number built by advice of agents, 68
Number at beginning of work, 286; now, 597
Number of tile, 19; cement, 137; stone, 4; others, 237

Lime

Number of farmers using by agents' advice, 4,559
Number of tons used: burnt lime, 11,036; limestone or its equivalent, 28,420
Number of local sources developed, 30
Number of kilns built as result of demonstration work, 22

Farm and Farmstead Improvements

Work done with advice and help of agents and other extension workers:
Number of buildings erected, 434
Number of buildings improved, 731
Number of building plans furnished, 204
Number of buildings painted or whitewashed, 2,319
Number of home water systems installed, 205
Number of home water systems: formerly, 341; now, 547
Number of home lighting systems installed, 1,346
Number of home lighting systems before work started, 283; now, 2,817
Number of grounds improved, 2,156
Number of home sanitary condition improved, 6,943
Number of homes screened, 6,943
Number of privies erected, 11,844
Number of telephone systems installed, 5,402
Number of farmers induced to plan and use rotation, 1,251
Total acreage of such rotations, 3,749
Number of new pastures established, 1,980; acres, 14,127
Number of old pastures renovated, 588; acres, 4,995
Number of drainage systems installed, 271
Number of farmers induced to drain all or part of farm, 1,524
Number of acres so drained, 20,716; by tile, 1,091; by ditches, 19,625
Number of farmers induced to remove stumps, 986
Number of farmers induced to terrace land, 2,527; acreage, 37,294
Number of home gardens planted, 14,368

Number of farmers induced to save surplus products, 13,411
Number of road improvement demonstrations assisted in, 126
Number of miles resulting therefrom, 1,156
Number of farmers planting cover crops to be turned under, 13,360
Number of new implements and tools bought: binders, 114; hay presses, 232; gas engines, 525; two-horse cultivators, 1,084; tractors, 439; motor trucks, 698; corn planters, 655; mowers, 460; grain drills, 579; disk harrows, 982; one-horse cultivators, 2,815; plows, 1,011; hay loaders, 101; hay rakes, 279; silage cutters, 56; cream separators, 117; spraying machines, 398; manure spreaders, 735; small tools, 13,910

Miscellaneous Extension Work

Number of visits by agents to demonstrators	16,873
Number of visits by agents to co-operators	19,854
Number of visits by agents to other farmers	27,923
Number of visits by agents to business men	7,310
Number of visits by agents to boys' and girls' clubs	8,881
Total	80,841
Number of miles traveled (railroad)	123,216
Number of miles traveled (team)	51,408
Number of miles traveled (automobile)	349,974
Number of miles traveled (otherwise)	44,013
Total	568,611

Number of calls on agent at office or home (personal), 75,941
Number of calls on agent at office or home (telephone), 13,852
Number of farmers' meetings held by agents or extension division, 4,382
Number of farmers' meetings addressed by agents, 5,185; attendance 341,709
Number of field meetings held by agents, 1,244; attendance 31,154
Total attendance at meetings 372,863

Per cent of time spent in office, 20
Per cent of time spent in field, 80
Number of official letters written, 144,277
Number of articles written for publication, 2,456
Number of circular letters sent out, 88,656
Number of U. S. Department of Agriculture bulletins mailed, 84,363
Number of State College and State Department of Agriculture bulletins mailed, 41,653
Number of visits to schools, 2,743
Number of assistances in school plans, 167
Number of extension short courses assisted in, 87
Total attendance at such schools, 11,662
Number of days spent in such schools, 362

Number of farmers induced to attend farmers's meetings, 263
Number of boys induced to attend schools or colleges, 264
Number of visits by specialists to agents, 1,148
Number of county fairs held, 52
Number of demonstrators, co-operators and club members having exhibits, 1,623; won prizes, 1,050
Number of demonstrators in truck farming, 206
Number of farmers keeping cost records: complete, 232; partially, 2,393
Number of farmers practicing fall plowing as result of agents' work, 14,197
Number of farmers selecting seed, 14,800
Number of farmers growing improved seed for sale, 1,313
Number of wood-lots improved by suggestions, 307
Number of farmers induced to grow sorghum or sugar cane for sirup, 9,177

Statistical Summary of Work Done by State Agent, Assistant State Agent and District Agents for 1919

Total number of miles traveled by rail	96,858
Total number of miles traveled by team and automobile	17,874
Total number of visits to demonstrators	633
Total number of visits to agents	505
Total number of meetings attended	631
Total attendance at these meetings	105,083
Total number of letters written	21,581
Total number of letters received	27,495

Statistical Summary

Number of miles traveled by rail	220,074
Number of miles traveled by team and automobile	463,269
Number of visits to demonstrators	17,506
Number of letters written	165,858
Number of meetings attended	6,259
Attendance at meetings	477,946

Morale

The spirit shown by the demonstration workers is one of loyalty, interest and enthusiasm. The co-operation between specialists and county agents has, in nearly all cases, been pleasant and successful. In fact, much of the work accomplished could not have been carried on without the assistance of expert advice and planning.

We have some suggestions to make for the improvement of the work for the incoming year, but these will be presented verbally. We now enter our new year's work with renewed zeal, fresh hope and an abiding interest, with the belief that we are rendering much greater service to the people from year to year.

Respectfully submitted, C. R. HUDSON,
State Agent.

REPORT ON HOME DEMONSTRATION WORK AND GIRLS' CLUBS

To the Director:

At the end of the year 1919 there are sixty-one counties organized in Home Demonstration Work reporting definite work done by club women and girls. Ten counties organized for emergency work in 1918 were discontinued in 1919.

The efforts of the Home Demonstration Agents were directed chiefly to problems left by unsettled conditions incident upon the war. The diminished purchasing power of a dollar made it necessary that women be instructed in just what might be safely done in cutting down food supplies; how to select that food wisely and to prepare it after selection; how to feed the children properly; invalid cookery; convenient kitchen arrangements; clothing; laundry; a water and lighting system for the home; the beautification of the home grounds; home sanitation and the family budget.

In the sixty-one counties reporting there were organized 653 women's clubs and 411 girls' clubs, and through the efforts of both home and farm agents, 226 community clubs. The community clubs embraced women, men, girls, and boys. The women's and girls' clubs had a total enrollment of 17,369 members.

Definite programs were arranged for these organizations, and club members took part in the demonstrations in making bread, the use of the fireless cooker, making over old clothes, making inexpensive hats, and simple and easy methods of doing the family laundry by the use of washing machines operated by electric power.

Clothing

In clothing there has been given by club members, and by the Home Demonstration Agents, 408 demonstrations. On account of the high cost of materials great interest has been manifested in remodeling old, out-of-date garments and refurbishing those in fairly good condition. Home-made hats have been fashioned in many club meetings and the women and girls take great pride in wearing organdy, gingham or woolen hats they have made at small cost, but with much taste.

Budgets and Household Accounts

An effort has been made by Home Demonstration Agents to interest women in keeping household accounts and in making out family and personal budgets. It is gratifying to have reported 476 women planning household budgets and 648 women actually keeping accounts and budgeting the family income.

Home Conveniences

A total of 4,475 kitchen cabinets, bread mixers, food choppers, wood boxes, and wheel trays have been reported bought or made. In addition there has been purchased 1,185 fireless cookers and 156 steam pressure canners.

The Laundry and Electric Power

With the shortage of help almost universal, the housewife has been eager to learn modern methods of laundry work, and to that end the Home

Demonstration Agents have encouraged the different farm power and light companies to exhibit their plants at the community and county fairs, and have agreed to demonstrate just how these electric plants will run washing machines, wringers, irons, sewing machines and churns, besides lighting the house and barn and furnishing the premises with water. In consequence 1,116 lighting, 452 water, and 31 heating systems have been installed in the State. Four hundred and eighty-five washing machines and 1,811 electric irons have been purchased, as have also 2,226 clothes hampers, laundry bags and other aids to laundry work.

Mr. Raney, Household Engineer of the Extension Service, has materially helped to install farm waterworks in several counties.

School Lunches

Following the great epidemic of influenza, the county agents and the women of the Home Demonstration Clubs saw the need for a hot dish in the school child's lunch, and to that end school teachers and club girls in the rural schools were asked to co-operate with the community women in working out practical plans. As a result hot lunches were put in 41 rural schools.

For the Knightdale School, in Wake County, Mrs. Bailey, the president of the Home Demonstration Club, called the members together and arranged for one woman and her assistant to take charge of Monday's lunch, another Tuesday's, and so on for the five school days.

Plans were made whereby each child should bring to the school a certain amount of produce grown at his or her home.

Mrs. Bailey was a real general in the matter. She knew that Johnnie had plenty of potatoes at home, Sarah a surplus of canned vegetables, Mary could bring peas, Tom had milk to spare, and Janet would rather bring money. Each child was credited at market prices with what was brought, and given in payment lunch tickets worth three cents. Almost every one had something to bring, even if it were only nuts from the woods.

If anything not usable were brought, it was easily exchanged at the grocer's for things needed.

The whole community was interested and the hot lunch was a success.

It was easy to get the co-operation of the older girls, and the old school heater, with the aid of the home-made fireless cooker, turned out delicious soups, cereals, and hot chocolate.

The community became so much interested that it grew an acre of cotton around the school house, tended and harvested it, and gave the proceeds, a little over $100, to better equip the school for serving its lunches.

Beautification of the Premises

Finding that work with women was rounding up to a point where they desired to plan the beautification of the grounds around the farm home, the Division of Home Demonstration Work asked Mr. Manning, the distinguished landscape designer who did so much to beautify Pinehurst, to give a lecture on planting at the June school for agents. Mr. Manning could not come in person, but was enough interested in beautifying rural North Carolina with native trees, shrubs, and plants to send to us Mr. Chas. Gillette, of Richmond.

Mr. Gillette agreed to make plans for the planting of ten rural home grounds, these places to be selected in the different sections of the State. The plans are now being drawn and each housewife whose home has been selected has promised to carry out the plans to the best of her ability. It is purposed to make these grounds demonstrations of what may be done to beautify the farm home.

Reports from club women show that many have been improving and beautifying the premises: Eleven thousand eight hundred and forty-nine winter gardens have been planted; 184 fences have been repaired; 719 trees planted; 548 shrubs planted; 331 lawns started; 2,160 flower boxes have been filled, and 639 sleeping porches have been built.

Farm Women's Convention

One of the best things the Division of Home Demonstration has fostered in its seven years of existence is the Farm Women's Convention. At this three day meeting, a short course of things pertaining to the farm and home is given, and ample evidence of the interest of the North Carolina farmers and their wives in better and more progressive methods, was shown by the attendance at the Seventeenth Annual Convention of Farmers and Farm Women held at the State College of Agriculture and Engineering, Raleigh, August 27-28-29. More than six hundred men and women registered for rooms, and those coming in automobiles for each day's program made the number run into much larger figures. Every section of the convention was well attended, from the joint meeting on Wednesday morning, when the President of the Farm Women's Convention made a fine address, through the adjournment meeting on Friday.

Prior to the convention, letters had been sent to every Farm and Home Demonstration Agent in the State, asking that representatives from each rural club in the State be present at the convention. How the agents responded is well illustrated in the remark of one Home Demonstration Agent, who said, "I brought a car full yesterday and two today—in all there have been twenty representatives from my county."

At the joint meeting on Wednesday, Mrs. Rosalind A. Redfearn, Anson County Home Demonstration Agent and the President of the Women's Convention, made a most interesting address. She appealed to the farmers to "Take the surroundings of the farm home and make them livable. Not only livable, but comfortable and convenient, that there might be safety, security and future happiness. The growing of corn and cotton is not all of life: and unless we transform some of it into this most vital thing that we call Home, is not all our labor in vain? What does it profit a man to gain many dollars and lose his own family?"

Environment and its effect on rural childhood; home nursing; fireless cookery; artistic and appropriate dress; interior decoration; laundry work, and the family cow were discussed and demonstrated during the three days. On the second evening the Home and Farm Demonstration Agents portrayed the character of their work by giving the play "Kindling the Hearth Fires." The college auditorium was filled to its capacity and the play was of such vital interest that it has been presented in many counties as a result.

Campaigns

Bread and biscuit campaigns, campaigns for the use of the fireless cooker, fly eradication by screening and cleaning, rat killing, and a one week campaign for "Infant Hygiene" were inaugurated in many counties.

The Home Demonstration Agent of Davidson County writes the following in regard to one of her campaigns for infant hygiene: "One interesting feature at the meeting was the fact that many of the young married women of the community had fancied themselves too busy to attend. I had a trained nurse with me who was going to talk on 'The care of expectant mothers' and I knew all the women should hear her, so I got into the Ford and went around through the community, gathering up the women from their gardens, blackberry patches, fields and wherever I spied them and took them to the meeting. I did not have time to wait for them to dress up and of course they went under protest, but I got them to that meeting any way, and it was one of the best we ever had. The women all thanked me for making them attend."

Biscuit Campaign

The Home Demonstration Agent in Lincoln County writes of a most successful biscuit campaign: "I believe it meant more to my county than anything I have ever done. I selected seven rural schools in which I thought the girls were most interested, and 175 girls enrolled to attend the bread demonstrations and to do the work I was asking of them. Eight prizes were offered in each school, three for the greatest improvement and five for the best biscuits. Three other prizes were offered for the best collection from the seven schools. I visited each of these schools once during the week and gave a demonstration in the making of biscuits. I also made and served one hot dish, either cocoa, chocolate or cream of tomato soup. Every girl was asked to bring to the first meeting a biscuit that she had made, and I kept them to compare with any she might make later.

"Soda biscuits are more used in my county and my first lessons were with them. Next we learned about baking powder; and after the demonstrations each girl was asked to bring three biscuits which she had made to the next meeting, that they might be criticised and that she might tell just how she made and baked them. This they did beautifully and I have never seen girls more eager to learn the whys and wherefores.

"The judge was kept very busy scoring. On Saturday we held a general round-up meeting at the county courthouse, when contestants from every school brought three fresh biscuits. These were judged and prizes awarded. In comparison with the first biscuits made the improvement was wonderful. The girls could scarcely believe the biscuits they had first made were theirs. It took the name on the bottom to convince them. The courthouse was packed with rural and town folks who came to see the awards."

Short Courses and Camps

To promote interest in the girls' work 45 club camps and short courses were held. The agent mixed fun with a program of interesting work at these week or three day courses. Such things as basketry, how to make a gingham hat, how to make a house dress, how to prepare and serve a meal, and personal hygiene were taught. These short courses proved very popular and bid fair to be over-crowded next year.

Northampton, Hertford and Bertie counties held a joint encampment in July. Miss Sarah Maude Padgett, Home Demonstration Agent of Northampton, says of it: "The Tri-County Encampment held at Chowan College was a great success. There were one hundred girls and one hundred boys present, forty-three girls going from this county. The college was turned over to us and we carried our own food. Each child was given a list of just what he or she should bring, and from these supplies we enjoyed many a camping meal as well as those in the dining room. Each day the girls had lessons in cookery, millinery, basketry, and canning, and in the afternoons indulged in swimming in the nearby streams, or in games. The evenings were devoted to joint programs, including lectures, music, pictures, and an amateur play."

The boys were quartered in tents and were given special programs pertaining to their work at the same time the girls were receiving instruction.

The three home demonstration agents in charge undertook the arrangements for meals and dining room service.

At all of the encampments the girls helped with the cooking and serving. At Camp Capehart, Granville County, there was a breakfast, dinner and supper committee with girls named to assist at the table.

Here is a day's menu:

Breakfast—Grapes
Bacon.....Scrambled eggs
Biscuits ..... Toast
Coffee ..... Milk
Dinner——Brunswick Stew
Ham ..... Biscuit
Baked apples.....Ginger snaps
Supper——Chicken.....Broiled tomatoes
Grits.....Hot rolls
Milk
Chocolate cake.....Lemonade

There were three girls at this encampment who gave bread demonstrations; a Red Cross nurse who gave fine instructions in personal hygiene; presiding geniuses of the games and fun-making and those who could swim and teach others the art. There were those also who sewed and those who made baskets, and all had a royal good time and came back the better for having drawn closely together in team work and in club spirit.

At a big club picnic in the mountain county, Cherokee, there were one hundred and twenty-five persons present. One mother who has twelve children, five of whom are in the club, came eight miles with an ox team bringing her whole family.

The first special short course for club girls held at the North Carolina College for Women began September 8th and ended September 13th. The attendance of eighteen would have been trebled could it have been held earlier. At that date most of the club girls had already begun the regular school course, and are in consequence begging for a more convenient date next year.

The girls were accommodated in the College dormitories, and the following courses given:

8:30 — 10:00	Cookery, Section I	Tuesday
8:30 — 10:00	Sewing, Section II	to
10:00 — 11:30	Cookery, Section II	Saturday
10:00 — 11:30	Sewing, Section I	inclusive
12:00 — 12:20	Personal Hygiene, Tuesday to Friday, inclusive.	
2:00 — 3:30	Millinery, Tuesday to Friday, inclusive.	
3:30 — 4:30	Basketry, Tuesday and Wednesday.	
3:30 — 4:15	House Decoration, Thursday and Friday.	
4:30 — 6:00	Recreation, games, songs and yells.	

In the cooking class lessons were given on the making of desserts and sandwiches, on the use of left-overs, and in table service. Neatness in all operations was stressed. As their closing lesson, the girls prepared and served a meal. This class was conducted by Misses Marsh and Ferguson, Home Economics teachers at the College.

In sewing the girls cut out an undergarment and completed it as far as possible in the time alloted them. They learned about materials and trimmings, what is and what is not appropriate and what materials and trimmings may be expected to give the greatest satisfaction.

In the millinery class the girls made tams for school wear and learned a great deal about re-trimming old hats and making inexpensive cloth ones. They seemed to enjoy this class very much.

The basketry lessons opened up a new field to the girls. They made some good baskets and were quick to see how the newly acquired knowledge might be used.

The personal hygiene instruction was just what was needed; the ground was well covered and the information given in such a way that it made a lasting impression on the girls.

The sewing class was in charge of Miss Joy Briggs, instructor in Domestic Art. Miss Pauline Smith, Franklin County Home Demonstration Agent, taught the millinery. Miss Mazie Kirkpatrick, Rockingham County Home Demonstration Agent instructed in basketry. The Home Decoration lectures were given by Miss Langer of the Domestic Art Department, and the personal hygiene instructions by Miss Blanche E. Schaffer, head of the Home Economics Department.

On Tuesday evening, community singing was directed by Professor Brown, Director of Music at the College.

A Commercial Venture

In the reports of the seven years of Home Demonstration Work, from time to time, accounts have been given of just how a club girl has added to her income by canning, preserving, or in other ways. Here is a story of

an enterprise started by a club in Transylvania, one of our mountain counties, and which bids fair to succeed.

"Some weeks ago we carried a report in these columns of a meeting of the Cedar Mountain Home Demonstration Club, at which the young ladies of the organization decided to operate a tea room near the Cedar Mountain post office. It was stated that the Cedar Mountain Club was the first Home Demonstration organization in the State to venture on such an enterprise. The undertaking is no longer a venture. It is a success far surpassing the hopes of its most enthusiastic promoters.

"The Cedar Mountain Tea Room opened its doors for the service of the public last Saturday afternoon at one o'clock and within three hours ten motoring parties had stopped to sample the ice-cold milk and home cooking and gone on their way looking forward to the time when they could come back.

"The members of the Home Demonstration Club have entire charge of every feature of this new business. Each girl in the club has a tenth acre garden which she cultivates with a stated amount of help. The vegetables from these gardens supply the tea room. They are purchased from the owners at market price by the management. The tea room has a general manager, a business manager, a secretary and a treasurer elected from the membership of the Home Demonstration Club and turns all receipts above expenditures into the club treasury. The money made in this way is to purchase a community canning outfit for Cedar Mountain. Everything used in the tea room is to be bought so far as possible at Cedar Mountain. Later in the season fresh fruits from adjacent farms will be handled by the club in an effort to create a home market for local products. In fact, the best use of home products and home talent is the motive of the Cedar Mountain Demonstration Club, and this idea has been carried out to a wide extent in the inauguration of the business.

"For the location of the tea room the club members procured a building formerly used for a store, but which has been closed for a number of years and was in a rather delapidated condition. With hammer, nails, paint and scrubbing brush, they went to work. With the help of the corn club boys the interior of the building has been transformed into a state of inviting attractiveness which has to be seen to be appreciated. With its rustic tables topped by growing maidenhair ferns it makes a welcome retreat for the dusty traveler."

Poultry

A. G. Oliver, Extension Poultry Specialist from the Division of Animal Industry, working through the home demonstration agents in most of the counties of North Carolina, and through the Home and Farm Agents working together in others, organizes the poultry work and gives special instruction to the club members.

In 1919 there were 34 counties reporting 193 clubs, with a membership of 1,966. Of these there were taking charge of the entire flock 1,112 members; average number of fowls in flock, 26; number of members purchasing pure-bred stock, 557; number of members purchasing pure-bred eggs, 1,098; number members using standard bred males, 605; number members making brooders, 339; number members building poultry houses, 202; appropriate number of chickens raised, 70,828; number fattened for market,

13,970; pounds sold, 18,981; pounds used at home, 23,389; number fowls culled, 2,025; number members producing infertile eggs, 140; number roosters eliminated, 80; number dozen eggs preserved, 1,978; number dozen eggs used at home, 8,835; number dozen eggs sold co-operatively, 513; number pure-bred fowls sold, 643, and standard bred fowls retained, 8,423.

The Anson County Home Demonstration Agent, who, together with the Farm Demonstration Agent, supervises the poultry clubs writes: "Mr. A. G. Oliver, Extension Poultry Specialist, visits us about three times a year, and at a recent visit was very enthusiastic over many of the club flocks, saying they had improved fifty per cent and were among the best in the State. We have exhibited at many of the poultry shows and always won several honors. At the 1919 State Fair the Anson County club members won about $75 in premiums. It is a great pleasure to visit the girls and boys and see the interest and care they take of their birds.

"The sales from the flocks have amounted to a large sum, most of which was put into bonds or stamps. We have a good supply of poultry products for sale during the winter, and in 1919 shipped 1,250 pounds by parcel post. The housekeepers of both town and country have been well pleased with results from storing eggs in water glass."

The Home Demonstration Agent of Guilford County has sent in the following record from Myra Davis, of Greensboro, R. F. D. No. 7:

Brown Leghorn hens 80	
Estimates 200 dozen eggs sold from January 1, 1919, to March 19th	
From March 19, 1919 to October 1st.....5,226 eggs produced	
From March 19, 1919 to Oct. 1st.....3,660 eggs sold	
From January 1st to October 1st.....505 doz. eggs sold....	$277.75
From January 1st to October 1st.....143 chickens sold.....	143.00
Won at Greensboro Fair in Prizes	18.50
Won at Raleigh Fair in prizes.....	12.00
Total	$451.25

This estimate does not include eggs and chickens eaten at home.

"Myra Davis has built good houses and yards. She bought this year the very best male bird we could find for her and is making every attempt to improve her stock. She is about fourteen years of age and has been one of the most faithful members to keep records and make reports."

The following is a report of a fourteen year old girl from Lee County:

"In the year 1917, Miss Gertrude Little, the Home Demonstration Agent, came to our school and made a talk on poultry club work and what others had done. I decided I would join.

"In April I ordered five sittings of White Wyandotte eggs. When they came part of them were broken. I set them under old hens: they came off the 5th day of May. Out of the five sittings of eggs, thirty-four of them hatched. My papa made me some brood coops and wired in a pen around some trees so they had a nice cool place to stay. I fed them on buttermilk and wheat. Out of thirty-four chicks I raised thirty-two. They grew off nice.

"This year I bought twelve old hens and a rooster. Part of these got poisoned with salt; so I lost part of these. I bought five sittings of eggs

and with what eggs I got from my hens, I set about three hundred eggs. From these eggs I got about two hundred chicks. These grew off nice. Fifty or more of my broilers got off that I couldn't account for.

"Mr. Oliver, from Raleigh, came to see my chickens. He wanted me to send a pair to the State Fair at Raleigh. My brother made me a box to ship them in. I sent a pair over there and got first premium on them.

"I had bad luck in the start with my chickens, but I enjoyed the work and didn't get discouraged. I am going to try again next year."

What Mrs. R. L. Lambreth, Sanford, N. C., did with poultry:

"My experience as a poultry club member, I'm afraid will not be so much help to others. I am a housekeeper and have so many other duties that I do not have the time to give my flock as I would like.

"I have the Barred Plymouth Rocks. (Think there is no better breed.) In 1918 I kept twenty-five hens and only one male, which I should not have done, and would advise others not to do. But I tried setting some of the eggs, and as they hatched as well as they have for several years, decided would keep setting them. I have no incubator—just use hens. I hatched about 150 chickens, from which I sold for breeding purposes $25.00 worth and culled out for market $50.00 worth.

"In the fall, Mr. Oliver, Extension Poultry Specialist, came and advised me to get some cockerels for this past spring, 1919. Mr. Oliver was kind enough to select me two nice male birds from poultry shows, and had them shipped to me in the spring, and with these two and the one that I used last year, with 38 hens hatched out 240 chickens. Only lost a few. The eggs hatched much better than they did the year before.

"I have no breeding pens so could not pick out my best stock for breeding. I sold for hatching last spring $25.50 worth of eggs, and sold for market $35.22, and this fall sold for breeding purposes $58.50 worth. I did not keep a record of what we used at home. I tried to keep a record of the eggs I sold, which amounted to $32.85.

"Mr. Oliver came again this fall—said I had some nice birds, but he would not advise showing any at the State Fair, but he thought I had some nice enough to send to the County Fair, which I did, and won first prize on best cockerel and pullet. I intended sending some to the Pinehurst Fair, but found just the day before that some of my chickens had sore head; so of course I could not send them, but am sure mine would have won first prize for they are so much better than those I saw there. I expect to have a breeding pen next spring and hope to have some birds equal to any at the State Fair. I am sure if we will carry out Mr. Oliver's plans in raising poultry we will succeed."

Dairy

Five hundred and eighty-eight women and girls enrolled in 13 counties for butter-making; produced 54,612 pounds of butter at an average price of 59c per pound, and 31,142 pounds were reported sold. Twenty-nine counties reported 79,445 dairy cows, 271 of which were purchased this year through the influence of the home demonstration agents. The slogan is: "At least one cow for every family." There were 76 demonstrations in butter-making given by the home demonstration agents.

For several years dairy short courses in several sections of the counties have been held during the winter and spring. Club butter was sent to contests for prizes at several county and community fairs.

Agents report 198 demonstrations given in cottage cheese making and that 835 women and girls were enrolled to make cheese. Those actually doing the work report 1,480 pounds made, selling at an average price of 31 cents.

There were 268 demonstrations in milk cookery and 750 families reported using more milk in the diet.

Fifty-four schools reported using milk for the school lunch.

The following equipment to the amount of 1,586 articles for the care and use of milk has been made or purchased: churns, butter-molds, thermometers, butter-workers, butter paddles, shot gun cans, brushes, milk pails, sanitary strainers, iceless refrigerators, and separators.

Fairs

From September through November, 189 community, 42 county and 10 district fairs have been held, rounding up to a big State Fair. The community fairs are almost wholly the outgrowth of the Home and Farm Demonstration Work and are regarded by the agents as fine schools for the people. Expert judges are furnished by both Home and Farm Demonstration Work and as judging is done before the public and score cards explained, results have been most satisfactory.

At the State Fair 43 counties exhibited thirty-six jars each of beautiful fruits and vegetables, and around the walls of the new building were booths filled to demonstrate the different phases of Home Demonstration Work. There was a convenient kitchen where the fireless cooker was demonstrated, as well as how to use a good oil range. Menus for well balanced meals were given and all kinds of labor saving devices shown. Near at hand was a steam pressure cooker to demonstrate how tough meats and vegetables could be cooked in less than half the time required by older methods. The laundry booth was in full swing, with the use of electric washing machines, wringers and irons being demonstrated. The clothing booth demonstrated work done in remodeling old clothes; the millinery, the making of inexpensive hats; the child's booth—home-made toys; the basketry and rug booth—just what could be done with native material, and the muscadine product booth—what is being done by club women and girls in turning muscadine grapes into grape juice, conserves, and jellies.

Twenty-one Home Demonstration Agents presided in the different booths to demonstrate and give out information by word of mouth and by bulletins.

This plan of showing club members' activities was followed in many county and community fairs.

Muscadine Grape Products

One of the new activities of the Home Demonstration Clubs has been the work with the scuppernong, James, Thomas and other muscadine grapes. Dr. Chas. Dearing, from the Pomological Division of the United States Department of Agriculture, in co-operation with the North Carolina Extension Service has been of great assistance to our farm women in showing

them the possibilities of the muscadine—just what variety to plant and how an industry may be built up in jellies, conserves and grape juice.

Mrs. Morris and Mrs. Smith, District Agents, spent a week in August at the State Test Farm, where Dr. Dearing was carrying on his experiments with muscadine grapes. They studied grape culture, pruning and training in the vineyard, and made grape juice, vinegar, ketchup, jellies, jams, preserves, conserves, mincemeat, marmalades, and paste in the laboratory.

Mrs. Morris remained at the Test Farm for five weeks longer to get all the information necessary to specialize in muscadine work.

STUDYING MUSCADINE GRAPES

From the preliminary work done by agents during the winter, spring and summer, fifteen counties report 367 girls and women enrolled in muscadine grape culture; 339 demonstrations have been given in twenty-three counties in the use of grapes; 11 counties report 2,274 new vines planted, 115 girls and women planting five or more vines; 30 counties report 6,055 gallons of grape juice made and the making of 5,102 quarts of other grape products.

A Home Demonstration Course for Rural Teachers

To put the work of the Home Demonstration Agent before the rural teacher and to insure her co-operation in community work, the Division of Home Demonstration agreed to form Home Demonstration Clubs to put on a program of club work at the different county institutes for rural teachers. Thirteen counties took advantage of this offer and for ten to twenty days programs of home economic work were given to 324 teachers. These women were asked to continue the work during the year by joining the home demonstration clubs in their respective communities. A bulle-

tin outlining the twenty lesson course was gotten out by the Division of Home Demonstration Work. This bulletin has been used also for girls' and women's organized clubs and 13,500 copies have been distributed.

June School and Conference for Home Demonstration Agents

The annual School and Conference for home demonstration agents was held at the State College of Agriculture and Engineering, June 3rd to 13th. In addition to Home Demonstration Workers attending the conference, there were a number of mill workers who requested the privilege of being present, making a total enrollment of eighty.

The State Agent assigned certain responsibilities in connection with the course to each of the five District Agents: Mrs. M. M. Henley of the Western District had charge of the registration and rooming of those attending, and during the entire conference had charge of the bulletin board and information bureau; Mrs. Estelle T. Smith, Eastern District Agent, purchased supplies for all classes; Mrs. Cornelia C. Morris, Tidewater District Agent, provided equipment needed for classes and demonstrations and was responsible for the placing and transfer to and from the college; the Piedmont District Agent provided for the entertainment of speakers and guests of the conference, and Miss Laura M. Wingfield, Central District Agent, made out the schedules, and in addition looked after instructors for different courses, the lecturers, and suitable class rooms for the different lines of work arranged for.

The program of work included instruction in canning fruits and vegetables in tin and glass for the new agents, steam pressure canning, preserving, pickling, the curing of meats, gardening, poultry raising, dairying, home nursing and sanitation, dietetics, invalid cookery, basketry, laundering, house planning, interior decoration, landscape gardening, care of furniture and floors, and millinery. Instruction was also given in community singing and plays and games for girls and boys. The most important part of the program of work was the general conference period two hours each day. At this time reports were given by the agents and matters of vital importance discussed.

The speakers on the program and instructors other than Home Demonstration Workers were: B. W. Kilgore, Director of Extension; Major W. A. Graham, Commissioner of Agriculture; Dr. W. C. Riddick, President of the College of Agriculture and Engineering; O. B. Martin, in charge of Home Demonstration Work, Washington, D. C.; Dr. LeFevre, Bureau of Chemistry, Washington, D. C.; Mrs. Evelyn S. Tobey, Teachers' College, Columbia University, New York City; Mrs. Grace R. Wilmot, Interior Decorator, New York City; Dr. Chas. Dearing, Horticulturist, U. S. Department of Agriculture; Raymond Marsh, Secretary of the American Washing Machine Manufacturing Association, Chicago; F. L. Mulford, Landscape Designer, U. S. Department of Agriculture; Chas. F. Gillette, Landscape Designer, Richmond, Virginia; Miss Madge J. Reese, Agent in Dairying, U. S. Department of Agriculture; Miss Mary Hill Davis, Handicraft Teacher, State School for the Blind, Raleigh; Mr. Lacey, Household Engineer, Washington, D. C.; Misses Rowe and Gross, of the War Camp Community Service; R. Blinn Owen, Musical Director, St. Mary's, Raleigh; Miss Josephine Shiffer, Head of Home Economics Department,

Meredith College, Raleigh; Miss Rose Ehrenfeld, State Director of Public Health Nursing, Raleigh; Mr. Pedlow, Instructor in Gardening, State College of Agriculture and Engineering; Earl Hostetler, Animal Industry Division, and Allen G. Oliver, State Poultry Club Agent.

Midwinter Conference of Home and Farm Agents

During the early part of February a conference of Home and Farm Agents was held for the purpose of getting together in community organization.

The joint meetings were practically taken up with discussions of how the Home and Farm Agents would co-operate and what were the best organization plans. The committee on Community Club Programs reported at this meeting and brought in a skeleton program which proved the basis of "Community Club Programs," gotten out later by Mrs. Henley of the Home Demonstration Division.

At the separate Home Demonstration sessions the different phases of community club work were discussed. The health, educational and social side were stressed; as were "How the Community Can Add to its Income," how it can secure waterworks and light, and how it can be beautified by planting.

The heads of the different divisions of State work who were seeking to co-operate with the Home Demonstration Division were asked to meet with the agents and help evolve plans to avoid duplication of effort and to arrange the details of co-operation.

An actual demonstration of a Home Demonstration Club meeting in session was staged by the agents. This was amusing as well as instructive.

The get together dinner of men and women agents was most delightful and insured a better acquaintance and a closer understanding of each others' problems.

County Councils

That the County Home Demonstration Agent shall have the hearty cooperation and advice of the active Home Demonstration club women of the county, county councils have been organized in fifteen counties.

These councils are composed of representatives from each Home Demonstration Club or from a group of clubs in each township. The council meets once a month in the Home Demonstration Agent's office and there its members discuss community problems and just how club work can be made to meet them. Club membership and bringing in the least progressive parts of the country are talked over and members of the council agree to visit the different sections in an effort to promote Home Demonstration Work.

In one county the council petitioned the County Board of Health to add two women to its number, one from the country and the other a trained nurse from the town. This the Board readily agreed to do.

The council in some counties is superseded by a county federation, as in Mecklenburg. This county agent has brought her clubs together in a clearing house at the county seat where delegates from each club, and some members at large, meet periodically. There are already 150 members, and club work all over the county has been greatly stimulated by these monthly comings together of the vital people of the territory.

This is well worth while promoting in any county that is ready, but should not be undertaken too early in the organization. Just as community clubs should be the expression of the gradual growth of club work, so the federation should fill the need of the individual clubs for stimulating intercourse and discussion of common problems.

The County Map

To secure an accurate idea of just where clubs are situated in a county and to indicate what clubs are organized in the different townships, each county agent was asked to send in a map of her county. Fifty-five counties responded with large or small maps.

Outdoor Canning Demonstrations Popular in Summer

Report of 1919 Canning

Two hundred and seventy-two girls are paying part or all of their expenses by their work in canning, basketry, grape culture, or gardening. The following is a report of the canning done in the summer of 1919 when gardens were hard hit by floods followed by unprecedented drought:

Total number of containers filled by girls and women in the Home Demonstration Clubs	1,242,211
Total number of containers filled by colored women and girls in Home Makers Clubs	476,811
Grand Total	1,719,022

Canning statistics by counties will be found on the last pages of the report.

Negro Work

Home Demonstration Work for the negroes has been organized two years. In 1919 colored supervisors with home economics training were appointed as assistants to the White Home Demonstration Agents in 41

counties. These assistants are employed for two months and are expected to travel about the country and to show the negro housewife how to garden and can, as well as to demonstrate the preparation of food, the balancing of rations, and to instruct in sanitation.

In counties which have no negro assistant the county agents demonstrate at negro meetings and render all the assistance possible. Our specialists and district agents also attend special negro meetings and report great interest.

The Davidson County Home Demonstration Agent says of her assistant: "Dazelle Foster came last Sunday and has made a splendid impression upon the colored people. She is making a fine start with her work and is to have an office in the negro graded school. She has formed seven clubs already—four community clubs, two women's clubs and one girls' sewing club, and I believe with her energy, tact and diplomacy that she is going to be able to handle them all without any trouble."

A page from the report of Dazelle Foster will show the nature of the work done: "This week I have traveled 24 miles by rail, 26 by auto and 16 by team. Have held 8 meetings with a total attendance of 265. Monday was spent in holding sewing classes. The small girls came in the morning, while the larger girls came in the afternoon. Tuesday nothing but sewing classes were conducted. Wednesday afternoon the fireless cooker was demonstrated to the Woman's Club in Union community. At night a community meeting was held. Thursday was spent in visiting in Union community and giving individual assistance. Friday was spent in conducting cooking classes in another community. Saturday I met with the Woman's Club of New Jersey community. The women sewed all the afternoon. At night we had a community club meeting.

"The colored people of this county have never been worked with before. They seem very anxious and appreciative of some one to work with them. The days and hours are not long enough for me to give the help called for."

Summary of Colored Work

No. Girls' Clubs organized	202
No. Women's Clubs organized	232
No. girls enrolled	5,354
No. women enrolled	7,009
No. gardens	3,475
Demonstrations held	1,007
No. homes visited	6,660
No. clubs visited	952
No. club members visited	4,618
Miles traveled	20,509
Meetings held	1,259
Attendance	45,585
Conferences	3,332
Letters written	3,519
Circular letters	2,439
Bulletins sent	15,532
No. cans and jars filled	476,811

Money value of canned products		$140,211.30
Lbs. vegetables dried	8,751	
Money value of dried vegetables		1,225.14
Lbs. fruits dried	16,810	
Money value of dried fruits		$ 3,779.06

Bulletins

Two new bulletins were gotten out by the Division of Home Demonstration Work in 1919: "Suggested Community Club Programs" compiled by Mrs. M. M. Henley, and "A Study in Foods for Home Demonstration Clubs" by Mrs. Cornelia C. Morris.

County Agents' Statistics

Miles traveled	241,589
Meetings held	7,254
Attendance	325,159
No. Demonstrations by Agents	6,669
No. Demonstrations by Women Club members	2,440
No. of visits to clubs or schools	6,030
No. Demonstrations by Girl Club Members	1,134
No. of visits to club members	12,831
No. of letters written	57,572
No. of visits to others	6,625
No. of bulletins sent	158,146
No. of conferences held	46,762
Articles prepared for publication	1,581
No. short courses held	130
Rest rooms established	14

District Agents' Statistics

Miles traveled	36,389
Number of meetings held	366
Attendance	35,808
Agents visited	241
Letters	2,142
Circular letters	2,303
Bulletins	4,376
Conferences	3,420

State Agents' Statistics

Miles traveled	2,954
Talks given at meetings	60
Attendance	4,191
Conferences	796
Letters	2,589

SUMMARY OF CANNING FOR A PERIOD OF EIGHT YEARS, 1912-1919

Year	Number Counties Organized	Number Girls Reporting	Number of Cans and Jars	Value of Products
1912	14	229	33,019	$ 3,301
1913	14	235	70,000	7,000
1914	32	814	259,019	35,361
1915	37	2,386	633,447	104,241
1916	44	3,453	680,551	117,816
1917	60	*14,382	8,778,262	2,179,362
1918	73	*16,663	5,860,700	1,374,690
1919	61	*17,369	1,242,211	449,787
Totals	335	55,531	17,557,209	$ 4,271,558

*This includes both women and girls in the Home Demonstration Clubs and Canning Clubs respectively.

*For 1917-1918, in addition to the club women, 150,000 housekeepers filled cans with garden produce for winter use and helped materially in swelling the number reported.

Respectfully submitted,

JANE S. McKIMMON,

State Agent.

Counties	Food Conservation Statistics					County Improvements				
	Women and Girls Enrollment	Containers, Tin and Glass (Quarts)	Pounds Fruits and Vegetables Dried	Pounds Fruits and Vegetables Brined	Money Value of Total Products Canned, Dried, Brined	Number of Community Clubs	Number Schools Establishing Hot Lunches	Lighting Systems Installed	Water Systems	Washing Machines
Alamance	118	6,952	700	3,000	$ 2,831.75	4	1	4		
Anson	800	62,100	12,600	4,000	25,831.00	22		16	5	6
Beaufort	362	13,669	192	2,500	3,598.50	1				
Bertie	1,665	27,247	875	640	7,327.62	20		73	57	50
Bladen	185	26,203	60	800	5,779.91	2				
Brunswick	74	26,250	200		7,478.00	1		6		
Buncombe	740	107,329	847	872	28,160.49	4	4	2		
Cabarrus	198	11,700	1,500		6,175.00	3				
Catawba*	490					16				
Cherokee	86	4,121	1,400	10,520	3,160.60					
Cleveland	180	10,910	922	678	3,118.55	1				
Columbus	575	9,202	310	711	2,955.92	2	5	65	25	5
Cumberland	250	6,850			1,550.50	1				
Davidson	233	14,500	100	200	4,767.50	14				
Durham	125	900			185.00	5		3		
Edgecombe	349	13,300		600	3,165.00	5		17	22	12
Forsyth	227	20,790	1,500	900	5,267.40	5	4	8	4	4
Franklin	193	10,065	1,425	220	2,600.90	2		3	2	1
Gaston	615	15,500			5,170.00	5				2
Granville	251	33,500	500		12,500.00	1				
Greene	283	437		200	175.00	4		25	10	4
Guilford	225	73,366	500		28,275.25	6	7			
Halifax	425	27,250	3,700	1,100	12,384.50	1				
Harnett*	37					3	1			
Hertford	96	3,116			1,434.50		2	12		
Hyde	122	98			34.00		1			
Iredell*	171							1		
Jackson	46	2,538	54	24	991.42	5				

Counties	Food Conservation Statistics					County Improvements				
	Women and Girls Enrollment	Containers, Tin and Glass (Quarts)	Pounds Fruit and Vegetables Dried	Pounds Fruit and Vegetables Brined	Money Value of Total Products Canned, Dried, Brined	Number of Community Clubs in County	Number Schools Establishing Hot Lunches	Lighting Systems Installed	Water Systems	Washing Machines
Johnston	540	119,669	4,214	772	$ 38,480.65	13		184	16	23
Lee	152	6,027			1,462.75	2		3	2	
Lincoln	565	20,750	1,000	100	7,257.50	7		2	2	
Macon	235	5,200	50		2,377.50	10				
Martin	160	665	50		234.25				1	
Mecklenburg	325	42,998	298	292	19,453.12			8	9	
Montgomery	138	5,550	298	600	3,185.05	5		5	7	
Moore	50	74,862		6,000	19,834.00	3	3	7		
Nash	372	14,250		500	4,847.50					
New Hanover	235	10,673	975		3,508.80	2	2	50	15	
Northampton	89	375			160.00		6			
Onslow	129	6,794	309	2,200	2,334.31	5				
Orange	215	11,226	243		4,874.32			18		
Pasquotank	714	17,451	1,025	500	8,940.72	3				
Pender	194	8,750	295	300	3,692.40	3		40		5
Perquimans	75	3,168	90	50	1,510.50	2				
Person	245	106,050	6,045		66,085.12	10				
Pitt	127	1,886	219	29	598.79	1		1	1	2
Richmond	200	16,353		500	5,956.90			5	2	
Robeson	190	3,150			1,395.00		1	1	1	
Rockingham	288	13,449	500	200	4,142.00	5		12	10	
Rowan	178	35,470	2,900	500	13,945.00	3				
Sampson	230	8,500		100	2,523.75			75	50	
Stanly	150	3,975			1,165.00					
Swain	87	16,655	1,810	10	5,783.40	3				
Transylvania	226	12,961	100		3,207.20	1			1	2
Union	210	2,000			400.00				12	
Vance	156	35,314	500	2,050	9,693.75	4		50	3	3

Wake	400	57,325	9,200	1,000	19,398.75	3		250	175		350
Warren	229	9,721	682	183	4,554.82						
Washington	375	11,039	1,110	900	3,606.20	3		25			
Wayne	410	15,112	348		3,977.01	2		53	10		8
Wilson	359	16,950	2,000	1,400	6,284.75	3	4	92	10		5
Totals	17,369	1,242,211	61,646	45,151	$ 449,787.12	226	41	1,116	452		485

REPORT OF THE DIVISION OF AGRONOMY

To the Director:

The main efforts of the Division of Agronomy have been taken up chiefly in carrying to farmers, on their own farms, information which we have secured in our experiments in soil fertility and crop improvement. Considerable attention has been devoted to legumes and sorghums in work with farmers through county agents, and to cotton and small grains in the community seed improvement work. Below is given a brief resume of most of the extension work that has been in force during the past year.

Conserving Fertility of the Soil

In our extension work, an especial effort has been made to impress farmers of the State with the importance of the fertility of their soils, and the disastrous results that will inevitably follow the neglect and loss of this important asset of the State. Two of the most important factors, largely under the control of the farmer for the improvement of the producing power of his soil, on which special emphasis has been placed, is that of building up the organic matter in the soil, and of meeting the plant-food needs of crops grown on his soil. It has been recognized for some time that one of the main essential deficiencies of our soils is organic matter, and, in order to build up the supply of this material in them in the most economical way, farmers have been urged to devote more attention to the growth of suitable leguminous crops, in rotation with the main crops of the farm, than they have done in the past. It has been sought to impress them, too, with the fact that not only must these crops be grown, but they must be handled in such a way as to find their way back into the soils in as large quantities as is practicable. This means that the bulk of the vegetative part of the crops should go directly back into the soil. They have been told that it is absolutely impossible to handle these crops in any other way on the average farm, and have their growth aid in the largest way in building up the organic matter in their soils. In growing suitable leguminous crops, and utilizing them in the way indicated above, to as large extent as is practical, farmers have been shown by charts and in other ways that there will not only be an increase of organic matter in their soils, but the nitrogen supply of their soils should be greatly increased in a few years. It has been sought to impress them with the fact that when large crops of legumes are grown, and all the main parts of these crops are turned back into the soil, of poor or medium poor productivity, there should be a marked increase in the crops following. Especially would this be so, if the other necessary plant-food needs of the soils for good crops were met. Information of this kind, and other of a sound economical nature with reference to methods to use in building up the productive power of their soils, is constantly being given to farmers.

Extension Work with Soybeans

Beginning the first of May of the past spring, Mr. Herman of the division visited eight counties in which soybeans at present are not grown to any extent, to give information regarding the value and culture of this crop.

In each case the work was done in co-operation with the county agent. Several letters recommending this work have been received from county agents.

In order to establish some of the best yielding strains of soybeans for the different sections, the division has co-operated with the Philadelphus, Harmony, Bahama and Sand Hill Farm Life Schools. Each of these, at the beginning of the season, were furnished sufficient seed to plant a small piece of land to Black Eyebrow, Virginia, Haberlandt, Mammoth Yellow, and Mammoth Brown varieties of soybeans. The schools had previously agreed to save seed from the best yielding varieties in their respective sections of the State, to multiply and distribute these among the farmers of their communities.

Some of the best strains isolated on the Central farm have been distributed to a few county agents who agreed to have them grown by their co-operators, with the understanding that an equal quantity of seed would be returned to the division at the end of the season. Several of the agents have reported very satisfactory results from these specially selected seed.

Extension Work In Soils and Crops

The main efforts in Agronomy Extension by the Division, during the past year, have been in soil fertility, in soil management, in crop improvement, with legumes, and with sugar plants.

In Soil Fertility. During the year, the entire time of one man, and part time of two other men, has been taken up in giving to the farmers information with reference to soils and soil building. The work has been done mainly through county agents, but some has been done directly with farmers. In this work, an effort has been made to carry to the farmer, on his own farm, specific information with reference to the plant-food requirements of his soil for the most profitable production of the crops being grown.

Especial effort has been made to encourage the growth of more legumes for soil improving purposes. It has been felt for some time that if our farmers are to make the most out of their farming operations, they must not only use materials carrying plant-food constituents on their crops in the right proportions, but should make every possible effort to supply their soils with more nitrogen and organic matter by the growth and proper handling of leguminous crops. When this is done, the amount that will be required to be expended for commercial nitrogen will be materially reduced. One of the growing needs of most of our soils at the present time is a large supply of organic matter. Until this material has been supplied, farmers cannot be expected to have the fertilizers which they apply give the best returns with the crops that are being grown. There can hardly be too much emphasis placed upon the importance of a liberal supply of organic matter in most of our soils.

The Extension Agronomist has found that practically all of the soils he has examined are more or less acid or sour. This being the case, he has emphasized the importance, in his visits among the farmers and county agents, of the use of lime on most of our soils; certainly, before attempting the growth of legumes. Our fertilizer experiments, as indicated elsewhere in this report, have emphasized the importance of lime for best returns, not only in the growing of legumes, but also for other crops.

Crop rotations and the use of proper cultural methods have been emphasized by the Extension Agronomist.

Information with reference to not only the kind of fertilizer for different crops when grown on different soils, but also with reference to how to apply and when to apply the fertilizers, has been given to farmers by personal visits, by correspondence, and by brief articles in local papers. The Extension Agronomist has been called upon to give information with reference to the best source from which to secure lime, and the best form to use. He has provided himself with information with reference to different sources, and the freight rates of these, so that he has been able at all times to give definite and reliable information along this line for the guidance of farmers.

Crop Improvement Work With the Farm-Life Schools

The work done with these schools has been so planned that it will be of value to the students attending the schools, and the people of the communities in which the schools are located. During the past season, the division has co-operated with eight schools. Five of these—Bertie County, Philadelphus, Harmony, Bahama, and the Sandhill Farm-Life Schools—were furnished with soybean and cowpea seed for variety tests. Members of the staff have visited these schools twice during the season, to study and point out the good qualities of the strains being tested for the respective sections. At the Craven County and Philadelphus Farm-Life Schools, cotton breeding work has been started with the object of having these schools act as sources of good cotton seed for their respective communities.

In addition to the above work, some of the schools have been supplied with outlines for the study of farm crops and breeding work. Specimens of seed from our different varieties of farm crops have also been supplied to a few of them for class-room work.

Sugar Plant Work

During the year, the Sugar Plant Specialist, who is employed jointly by the Sugar Plant Division of the U. S. Department of Agriculture and the Agronomy Division of the N. C. Extension Service, has prepared a number of articles for the press on the value to North Carolina farmers of growing more sugar producing plants than they are at present growing. In addition to this, he has prepared a manuscript on "Growing Sweet Sorghum and Making Sorghum Sirup," which was published as Extension Circular No. 84.

This work with sugar plants, since the last report, has been briefly as follows:

Sugar Beets. The date of the last annual report was too early to give the results of the sugar beet work for 1918, when seed had been distributed to over four hundred persons in the State, mostly in the counties of Ashe, Avery, Watauga, Mitchell, Yancey, McDowell, Buncombe and Burke.

Wherever the crop was properly cared for, the growth was fine and beets as perfect as may have been seen anywhere. Samples from a number of the plats in various counties were forwarded to the U. S. Department of Agriculture at Washington for determination of sugar content. The results showed the percentage of sugar in the juice to be 14 per cent, and above, in nearly all cases, one sample being 16.6, and an average of 14.31 per cent,

which compares favorably with beets grown in other sections of the country.

Last spring, seeds were distributed to farmers and others in the above named counties, and in Guilford, Rowan, Catawba, Caldwell, Iredell, Henderson and Transylvania counties.

Unfortunately, the season has been a very unfavorable one for experimental work with sugar beets, even in some parts of the mountain section. Exceedingly wet weather in May and June, alternating with extremely hot and dry, weakened and destroyed many plants in the Piedmont counties, while the August drouth destroyed most of the remainder. In the mountain counties, the growth has been very good, but even there, the August drouth did great injury. A large number of samples will again be sent to Washington for determination of sugar content. Should the results again prove favorable, a continuance and a broadening of experiments with sugar beets in the mountain counties will be recommended. Favorable results will strengthen our faith in the possibility of developing a commercial sugar beet area in that section.

Sugar Maple. Some progress was made last season in securing a greater output of maple sirup. Some four or five groves were operated that had not previously been used. The Linville Improvement Company of Linville, secured entirely new equipment for the working of two hundred trees. This was in the nature of an experiment to test the possible profit from a large operation. The results were entirely satisfactory, considering the season and the fact that the work was closed too early. In a successful sugar maple operation, the spiles should not be drawn and equipment put away until after the maple buds have swollen quite extensively, as a late freeze and thaw may bring the best run of the season any time previous to the opening of the buds. Such was the case last season, following a freeze in early April. Many orchards lost this flow of sap, as they had already taken in the equipment.

Last season was a poor one in all parts of the United States for maple sugar and sirup; the periods of freezing and thawing weather being too few. The prices received by the operators made up to them the loss from decreased production. The price ranged from $2 to $4 a gallon for standard sirup, the greater part being sold at the latter figure. At such a price, there should be sufficient sirup produced next season in the counties of Ashe, Watauga, and Avery, to bring an income at a very conservative estimate of $1,600,000. An increased number of owners of groves have signified their intention of operating next season, and they will be given all possible encouragement to secure this great wealth that is now being lost to the owners and to the State.

Sorghum. So far, judging by observation, there was a much larger acreage of this crop planted this year than last. In general more attention has been given to its care and cultivation. The Sugar Plant Specialist found that the sugar content was high in almost every test, and that more care was exercised in the manufacture of the sirup in all cases, than last year.

To determine what varieties are best suited to different soils and climatic conditions of the State, variety-test plantings were made as follows: Buncombe Test Farm; farm of George F. and R. J. Lutz, Newton; farm of Thos. D. Hardin, Greensboro; N. C. Experiment Station farm, Raleigh; farm of C. J. Heath, Ernul, Craven County; farm of J. T. White, Tyner,

Chowan County. The crop at the last named place was drowned out by the July floods, and was abandoned for our purposes. All others did well, and much valuable data has been gathered which will be tabulated and submitted in a later report.

Special attention is called to the fact that variety Sugar Drip led in production at the Buncombe Farm, with 443 gallons of standard sirup to the acre. In all of the Piedmont tests, the Japanese Seeded Ribbon, or Honey, was the leader, with 411 gallons to the acre at the Hardin farm, and 329 gallons at the Lutz farm. At the latter place, no fertilizer was used on this crop. Red Amber was second in production in all tests and Sugar Drip third, except as stated above, at the Buncombe farm, where it was first. In this test, the opinion held by many that the Amber variety will stand longer than others without deteriorating in any way after ripening, seemed to be confirmed. In this respect, the Sugar Drip is a close second. The long maturing varieties in every case surpassed the shorter maturing varieties in amount of sirup to the acre. This test shows, beyond a doubt, that sorghum can be grown and sirup produced at the rate of from 350 to 450 gallons to the acre, which, at a price of from $1 to $1.50 per gallon at the mill, as now sold, makes a very profitable crop. It is a crop worthy of more attention from the agricultural interests of the State than is now being given to it.

It is planned to repeat the variety tests through a series of years, since seasonal conditions have a great influence on all sorghum varieties. Sorghum sirup makers will be encouraged to get better equipment and to use more care in making and canning their sirup.

Sugar Cane.—Scarcity of time has prevented the Sugar Plant Specialist from giving the attention to this crop in the southeastern part of the State that it merits. Since the appearance of the cotton boll weevil in that section, it would appear as if it should be a fertile field for both sugar cane and sorghum crops. It is planned to give more time during the coming season to arousing the interest of farmers in this section to the value of these crops as substitutes for cotton.

Plant Club Work

During the past eight months the Plant Club Specialist has been actively engaged in organizing young folk into crop clubs of different kinds. During this time 33 counties have been visited, 124 meetings have been held with an attendance of 13,316, and 84 personal consultations with 104 persons have been held. This work has been done in 24 different counties, four of them having been visited twice each. Six thousand and sixty-one miles have been traveled by the specialist in this work: 1,468 by automobile, 14 by boat, and 4,579 by railway.

The first efforts of the Specialist, through April, were of an organizational nature, in which schools and other community centers were visited for the purpose of interesting boys and girls in club work, enrolling them into boys' and girls' clubs when the number justified. As a result of these efforts there were 894 members enrolled in corn clubs, 105 in cotton clubs, 10 in oat clubs, and 143 in peanut clubs, making a total of 1,324.

Elementary and practical instruction of the boys and girls enrolled in the different plant clubs was supplied the county agents for distribution to the club members through circulars and in other ways. Information was sup-

plied regarding the different phases of plant production, seed selection, fertilizing, cultivation, harvesting and marketing, as well as instruction in showing their crops at fairs. The plant club members have been encouraged to attend and make exhibits at community, county, district and State fairs. As a result of these efforts some have exhibited at most of the fairs in the State. Their exhibits have usually been of a very creditable nature.

A number of summer club encampments have been held in some of the counties in which there was much interest in club work. In these encampments, or short courses of instruction, short talks, illustrative lectures, moving pictures and demonstrations bearing on the work were given. Encampment schools have proven to be popular and give promise of stimulating a deeper interest in a more thorough and genuine club work in the future. It is believed that in the future the attendance at the encampments should be limited to those who have shown special merit in some line of accomplishment in club work.

A regular short course for club members was held at the State College of Agriculture and Engineering during the latter part of August. Although the attendance of plant club members was relatively low, those attending appeared to get much out of their trip.

There would appear to be considerable potentialities in plant club work properly conducted in stimulating a better and more thorough interest in life on the farm.

Why Grow More Soybeans?—During the past three or four years there has been great interest in the growth of soybeans in the State and throughout the South. During this time thousands have been brought to see the great value of this legume in their farming operations. The main reasons why this crop has found its way so rapidly and favorably into all parts of the State have been as follows:

1. Because cowpeas have not proven satisfactory in many places, and because some crop like soybeans must be used to supplement or take the place of cowpeas.

2. Because they are a relatively sure crop, succeeding when even cowpeas were a total failure, either from excessive rain or prolonged drought.

3. Because of their great feeding value. One can hardly find a better forage than soybeans for hogs. There is hardly a better hay than that made from this crop.

4. Because of its long planting season. They can be planted ordinarily from May 1 until July 10 in most of the State. They may be planted after early truck crops, and on all grain stubble lands outside of the mountain section.

5. Because of their great adaptability to different soils and conditions, they grow well on most soil found in every county in North Carolina. No other crop is quite so good to grow for hay or soil improvement in melons, cucumbers, and tobacco. They are ideal to grow in "skips" in any crop. Soybeans grown in corn, either between the corn hills or drilled thick in rows of three feet in width, alternating with the corn rows, will produce a good crop and take little or nothing from the corn.

6. Because the soybeans require relatively little labor to grow. They can be gathered cheaply by harvesters.

7. Because they are a great soil improver.

8. Because seed are ordinarily plentiful in the State and are obtainable at a very reasonable price.

How North Carolina Farmers are Handling Their Soybeans.—In the growth of any leguminous crop, unless a goodly amount of it finds its way back into the soil, there will not result any improvement of the producing power of the soil from the growth. It is feared that in many cases a misconception is in the minds of many farmers with reference to this matter. Soybeans, one of our most important leguminous crops, are being handled, generally speaking, very intelligently from the standpoint of building up the fertility of the North Carolina soil. From information at hand, it would appear that about two-thirds of the crop, not including the seed produced in 1918, went back into the soil for its improvement. In most cases it is probable that the seed were harvested before the beans were turned in. It is of interest to know that North Carolina, during 1918, produced almost one-half of all the soybeans grown for seed in the United States. This is a remarkable showing for the State, and is one that North Carolina farmers should be proud of. This bean during recent years has found its way into all sections of the South, and wherever it has been put in properly and given a fair showing, has demonstrated its great worth both for soil improvement and for feed for livestock. It is highly important that in all sections where grown this year a good amount of seed shall be saved this fall in order to have an ample supply on hand for the increased acreage that will no doubt be planted next year in all the states where this legume is suited for growth. The soybean fits in well with crop rotations suitable for use throughout the South, and when handled properly may be used as an effective means of building up the productivity of southern soils. Soybeans may be grown in corn and tobacco, or after small grains, in almost any rotation.

On an average, a ton growth of soybean vines will return to the soil about 50 pounds of nitrogen, 8 pounds of phosphoric acid and 26½ pounds of potash for every ton of dry vines turned into the soil. These constituents at the present time, in commercial fertilizers, would cost $31.01. Of this amount about $17, or almost 55 per cent, is due to nitrogen which the soybean crop took from the air, if properly inoculated.

Rotations Using Soybeans.—In work with farmers of the State, it has been emphasized that in order to get the most out of their farming operations, they should practice systems of crop rotation in which leguminous crops come in at frequent intervals. It has been shown that soybeans is one of the crops that may be used in many cases to good advantage in rotation with the main crops grown. Good rotations that have been suggested for different sections of the State are as follows:

I. For Coastal Plain Soils:

(1) First year—Corn, followed by crimson clover, or rye or both.
Second year—Soybeans or cowpeas after crimson clover has been cut for hay.

(2) First year—Corn, with soybeans or cowpeas in the corn.
Second year—Oats and vetch, followed by soybeans or cowpeas.
Third year—Cotton, followed by crimson clover.

(3) First year—Corn, followed by oats and vetch.
Second year—Oats and vetch, followed by soybeans or cowpeas.
Third year—Cotton, followed by crimson clover.

II. For Piedmont Soils:

(1) First year—Corn, soybeans or cowpeas sown in the middles, followed later by a broadcast seeding of rye.
Second year—Tobacco, followed by oats.
Third year—Oats, followed by soybeans or cowpeas in turn followed by crimson clover sown during the early fall.

(2) First year—Corn, soybeans or cowpeas sown in the middles.
Second year—Crimson clover, followed by soybeans for hay, the soybeans in turn followed by crimson clover, which is to be plowed in the spring for corn.

III. For Mountain Section:

(1) First year—Corn, followed by crimson clover sown in fall, crimson clover followed by soybeans for hay, the soybeans in turn followed by crimson clover, which is to be plowed in the spring for corn.

(2) First year—Corn, followed by crimson clover sown during the fall.
Second year—Crimson clover, followed by soybeans, which are in turn followed by oats.
Third year—Oats, followed by soybeans or cowpeas.

(3) First year—Corn, followed by crimson clover.
Second year—Crimson clover, followed by soybeans or cowpeas, in turn followed by fall seeding of wheat or oats.
Third year—Red clover sown during the early spring on wheat or oats.
Fourth year—Red clover for hay, the last growth being turned into the soils during the fall.

In closing this report I wish to commend the loyalty and fidelity to duty of all those associated with me in the Agronomy Extension Work.

Respectfully submitted, C. B. WILLIAMS,
Chief Division of Agronomy.

REPORT OF ANIMAL INDUSTRY DIVISION

To the Director:

Last year I gave merely a statement of the extension projects under way by the various members of the Animal Industry Division. Previous to that time in my annual report I picked out some of the most outstanding features of the division and reported these features in more or less detail. I will follow my old plan this year, as some have expressed a preference for the old plan. I cannot, of course, attempt to give in detail all of the work of the division, but I will explain a sufficient number of projects to give a rather comprehensive idea of the work of the division as a whole.

General summary

A general view of the activities of the various offices in the division may be had by studying the following summaries:

Name Office	No. and Kind Meetings	No. People Attending	Letters Written
General Office	1 community fair	320	
(Gray)	2 institutes	225	1,296
Dairy Extension	2 opening of cheese factory	115	5,400
	3 farmers' institutes	105	
	1 farm life school	50	
	32 farmers' meetings (bull association and buying cows)	978	
	2 Holstein cow demonstrations	190	
	4 creamery stockholders'	145	
	1 discussion milk situation	20	
	4 cheese factory annual meetings.	117	
	2 promoting cheese factory	200	
	8 cheese factory organization	273	
	3 cattle improvement	130	
	1 directors' meeting	8	
	1 colored agents' meeting	20	
	General agents' meeting	100	
	1 buttermaking demonstration	75	
	1 Convention Southern Cheese Men	20	
	State Dairyman's Association	30	
	Location of site	65	
	Distributing Holsteins	50	
Dairy Experimentation			1,248
Swine Extension	2 club short courses	220	924
	2 farmers' institutes	170	
	1 picnic	175	

Name Office	No. and Kind Meetings	No. People Attending	Letters Written
	1 farmers' convention.....	125	
	1 district fair		
	26 farmers' meetings (community)	714	
Swine Experimentation	1 Southern Agricultural Workers		525
Poultry Extension	372 school meetings	22,052	1,269
Poultry Experimentation	12 institutes	441	1,800
	6 poultry schools	243	
Beef Cattle & Sheep	57 demonstrations	1,425	9,463
	15 lectures	1,200	
	1 specialists' meeting	50	
	1 international	25	
	1 Southern Agr. Workers.....	500	
	1 wool conference	200	
	1 specialists' meeting	25	
Totals	574	30,801	21,925

Official Publications by Members of Animal Industry Division

The members of the Division have not published as much literature this year as previously, but the public has been kept in touch with our various lines of work by means of circular letters, circulars, bulletins, and magazine articles. The following table gives the official publications of the Division during the last fiscal year.

Kind of Publication		Name of Publication	Where Published	Author
Circular letters	9			Curtis
	1			Reed
	14			Shay
	1			Hostetler
	1			Combs
Circulars	3	Beef Calf Clubs		Curtis
		Sheep Clubs		Curtis
		Beef Circles		Curtis
	1	Score Card for Lard Type Hogs and Colony Hog House		Shay
	1	By-Products from Meat Curing		Hostetler
	1	To Preserve Eggs for Winter Use		Kaupp
Bulletins	2	posters—Sell Milk for the Cheese Factories—Get a Good Cow		Reed
	1	Results of the Guilford-Forsyth Cow-Testing Organization		Combs
Magazine Articles	13	Cotton-Seed Meal as Poultry Feed,	Jour. of Inst. & Inv. in Poultry Husbandry	Kaupp
6				

Kind of Publication	Name of Publication	Where Published	Author
	The Rationing of Poultry, Poultry Item		
	Plan of Production of Pedigreed Birds, Poultry Item.		
	The Three Stages in Handling Poultry, Poultry Item		
	Two Years from Pure Bred Poultry to Mongrels, Poultry Item		
	How the Chick Grows in the Shell, Poultry Item		
	A Successful Small Commercial Flock, Poultry Item		
	The Cost of Keeping a Flock of Fowls Now and 30 Years Ago, Poultry Item		
Books	The Anatomy of the Domestic Fowl.	Pub. Philadelphia & London	Kaupp
	Poultry Culture, Sanitation, and Hygiene,	Pub. Philadelphia & London	Kaupp

Swine Extension

During the year Mr. J. E. Moses left us to go to Alabama to a more lucrative position. Mr. W. W. Shay, who was Mr. Moses' assistant, was placed

BUILDING A HOG-HOUSE

in charge of the Swine Extension office. Mr. Shay was one of the most prominent and successful breeders of hogs in the South, and we were very fortunate in securing his services. He has had charge of the work only a few months, but has been developing an unusual amount of interest among the county agents and among the people. He has been assisting county agents in schools, in establishing concrete demonstrations, in building hog houses, self-feeders, and in buying hogs for farmers. Much of his time as a specialist is, of course, consumed in properly summarizing and digesting facts as they come from this and other institutions, and in passing these facts on to the county agents, who do not have time for summarizing much of the literature which comes out from educational institutions. From April 1st, when Mr. Shay began his work, to September 27, he visited in connection with county agents 142 farms, gave 35 talks before as many meetings, assisted in placing 132 pure bred animals, and planned many concrete demonstrations with the agents.

Poultry Extension

Mr. Oliver's work has been as successful this year as in past years. The boys and girls belonging to the poultry clubs have been unusually successful in raising and selling pure bred birds. They have shown against fanciers in this and other states and have carried away more than their part of the prizes. The record at the recent State Fair at Raleigh was unusually satisfactory as all conceded that our poultry club boys and girls had the very best fowls shown. Mr. Oliver works with both the county women and men agents, but the women agents have been more active as a rule than have the men agents as this sort of work seems to appeal to the women. The total enrollment this year is 3,625, and out of this number 1,200 are colored children. This year the boys and girls hatched 75,789 chicks and of this number raised 53,708, valued at $75,720.00. Three hundred two new poultry houses were built as a result of our extension efforts and 540 brood coops were constructed. Mr. Oliver and Mr. Warden gave 201 talks, 211 demonstrations with a total attendance of 15,329 people.

Sheep Extension Work

This work under the direction of Messrs. Curtis and Evans has been one of our most satisfactory efforts. Mr. Evans is unusually efficient and painstaking in all he does. It is impossible to give in a report of this kind even a fair idea of his activities. His time has been devoted to promoting several projects, as permanent pasture demonstrations, development of grade flocks, bringing in pure bred lambs and ewes, giving feeding demonstrations, shearing demonstrations, sheep schools, judging contests, building barns and silos, etc. During the year 2,350 grade ewes were brought into the State as a direct result of his efforts and 80 pure bred ewes have come along with the grades. One hundred ten pure bred rams have also been brought in as a result of his efforts. He has given 107 sheep shearing demonstrations—or rather sheep schools—with a total attendance of over one thousand people. Under Messrs. Curtis' and Evans' direction the dog control law was gotten through the last legislature. These men have been peculiarly fortunate in lining up all kinds of agencies and individuals to assist in promoting the sheep industry of the State. They have at least 40 co-operative

agencies working hand and hand with Mr. Evans. Some of these agencies are the banks, Red Cross, State Laboratory of Hygiene, State Veterinary Medical Association, State Merchants Association, etc. On account of the fact that our county agents are not as familiar with sheep production as with other phases of livestock much of Mr. Evans' time has been devoted to personally instructing them.

Beef Cattle Extension

Up to June 30, 1919, Mr. Curtis had three men assisting in beef cattle work, Messrs. Sloss, Peery and Miller. The two last named men were appointed only temporarily, so were dropped at the beginning of this fiscal year. The work is continued under Mr. Sloss' direction. The most of his time is devoted to the Piedmont and Mountain sections of the State. Mr. Sloss devotes his time to buying pure bred cattle for farmers and giving demonstrations in feeding, dehorning, etc., assisting in breeders' sales, inaugurating beef cattle test demonstrations, assisting in building silos and barns, and in organizing beef calf clubs among the young folk of the State. As an idea of Mr. Sloss' activities I will state that he wrote 2,963 personal letters during the year and visited 426 farms.

Dairy Extension Work

The dairy extension work has suffered rather materially during the year on account of war conditions and the resignation of some of our men. Mr. J. A. Arey resigned to return to Iredell County as County Agent. His old position was filled acceptably by bringing in Mr. Brintnall. Mr. A. J. Reed, who was head of the office, recently resigned to go into commercial work. Mr. Arey is coming back to us January 1, 1920, to direct dairy extension affairs. These changes in our force have, of course, materially lessened the effectiveness of the work, but we hope to have it organized well again soon after Mr. Arey returns.

The extension projects under way at the present time are:

1. Construction work.
2. Creamery building and improvement.
3. Cheese factory development.
4. Dairy schools.
5. General meetings other than dairy schools.
6. Herd records.
7. Herd improvement by means of bull associations.
8. Home dairying and the family cow.
9. Fair exhibits.
10. Official testing.

Little has been done in general construction work during the year as war prices and scarcity of labor have retarded this sort of development. Ten silos, 5 dairy barns, 3 milk houses, 28 milk cooling establishments, and a number of other small dairy improvements were made under our direction this year.

No new creameries have been constructed or organized during the year. A $50,000.00 company was organized at Winston-Salem, N. C. for handling milk and butter and started operation April 1. We assisted in putting this

on the proper footing. The creamery at Monroe closed its doors last fall, but it is contemplating opening again soon. The Experiment Station Creamery at Raleigh took care of its business when its doors closed. The Piedmont Creamery Company at Charlotte, N. C. closed its doors during the middle of the summer. Where creameries and milk depots have been handled in a business-like way the business has flourished during the year, as there has been a considerable increase in the output of butter.

Two commericial creameries are being installed at Raleigh. This makes it unnecessary for us to continue the Experiment Station Creamery as these two commercial enterprises can take care of the business. You will remember that the Experiment Station Creamery was organized to assist in developing the dairy business in the central part of the State. It has done this to the extent that commercial enterprises are willing now to make an effort to carry the business.

Cheese Factory Development

The development of the cheese industry is continuing satisfactorily. In fact, this is our most satisfactory piece of extension work. Factories are being built just as fast as our cheese men, Messrs. Farnham, Noland and Coe, can get to them. Since the war closed we have not experienced so much difficulty in getting and holding satisfactory men to manage and make the cheese at the factories. At the present time there are twenty-eight factories in operation in the State.

Cheese Factories and Output

Name of Factory	Production 1915	1916	1917	1918	Prospects 1919
Cove Creek	8,500	19,800	38,881	75,000	100,000
Grassy Creek	11,000	39,000	38,000	45,000	55,000
Beaver Creek	500	3,000	3,000	5,000	7,000
Silver Stone		1,500	20,000	25,000	32,000
Rich Mountain		7,800	18,113	35,000	50,000
Beaver Dam		2,200	17,255	25,000	35,000
Brushy Fork			7,663	12,000	17,000
Democrat			3,200	10,000	20,000
Cane River			7,782	12,000	18,000
Twin Oaks			25,532	35,000	46,000
New River			13,657	22,000	30,000
Helton			6,000	10,000	15,000
Mission			3,000	3,500	4,500
Cool Springs			2,000	4,000	5,500
Watauga Falls			1,000	1,500	4,000
Sutherland			8,000	18,000	25,000
Plumtree				3,500	5,000
Crossnore				5,000	3,000
Banners Elk				4,000	6,000
Penrose				3,000	7,000
Marble				3,000	6,000
Clifton				3,000	5,000
Three Forks				15,000	25,000
Piney Creek					7,000
Jewel Branch				5,018	
Prathers Creek					4,000
Waynesville					35,000
Crabtree					51,000
Total number pounds	20,000	73,300	214,083	379,500	627,500

Dairy Schools

This has up to this year been one of the chief activities of the dairy extension men. This year, however, no schools were held on account of war conditions and the ravages of influenza. If influenza does not appear again the usual number will be held this winter.

Herd Improvement

This work has progressed mainly during the past year through the organization of bull associations. During the year 626 head of bulls and cows, mostly pure breds, have been placed among the farmers of the State as a result of our activities. Much emphasis has been placed upon the question of organizing bull associations so that one neighborhood may be induced to buy a number of really excellent bulls and pass them from one block to another when their term of service is through in any one place.

Cow Testing Associations

Cow testing associations are needed, but it has been difficult to find a sufficient number of herds and owners in any one community to start this sort of work. Plans, however, are made now for small community testing clubs. These clubs are to be organized and the testing to be done by school boys, the boys to receive a little pay and credit in school for the work. We hope that these community clubs may be merged into full-fledged cow testing associations in the near future.

Respectfully submitted,

DAN T. GRAY,

Chief Animal Industry Division.

REPORT OF THE DIVISION OF ENTOMOLOGY

To the Director:

I submit herewith report of the extension activities of this Division for the past fiscal year.

General Extension in Economic Entomology

Organization.—This is an outgrowth of the emergency work of the U. S. Department of Agriculture during the war. With the lapse of the Federal emergency appropriation, W. A. Thomas was taken into the U. S. Bureau of Entomology for investigation work on Truck Crop Insects and stationed at Chadbourn, N. C., where a field station is being established. The extension project was then assumed on the state funds, and M. R. Smith engaged.

Nature of Work.—The work involves popular instruction to county agents and farmers, based on the findings of investigation work. This is done by correspondence, visits, meetings, institutes, publications, articles in the press, and other means. By it we seek to engraft into common practice the important findings of investigation work, such as are mentioned in our report under that head. While this work as a separate project is still new, it furnishes a splendid field for effort.

Mr. Smith has answered the requests of a number of the county agents by personal visit, taking up such matters as spraying of crops and trees, by proven methods. He has attended a number of meetings in company with extension representatives of the Divisions of Horticulture and Plant Pathology, thus giving fruit growers a program which includes orchard management and the control of insect and disease pests.

Worm in Soybeans.—During the epidemic of green clover worm in soybeans numerous articles were prepared for the press as the work proceeded, pointing out methods of control. The remedies advised worked well wherever applied in time.

Canker Worm in Forests.—A visit was made to sections where this pest had been at work, but the outbreak had subsided before the complaint reached us. This topic is still an open one for investigation, and only advice of a very general nature can be given until more careful study can be made.

Cotton Boll Weevil.—Immediately after the boll weevil was found in the State visits were made to the invaded territory to determine the limits of its spread. This has been found to include the whole of the counties of Brunswick and New Hanover, and adjoining parts of Pender, Bladen, Columbus and Robeson. Extension work in these counties will be important during the coming year.

Potato Spraying.—With the results of the experiments in potato spraying now published, this subject is ripe for further emphasis through extension work. It is a subject laden with money-benefits to our potato growers. They already control the beetles fairly well by the use of ready-made proprietary remedies, and these give a good profit too—but our tests indicate clearly, thus far, that much greater profits will result from the use of home-made poisoned Bordeaux mixture.

The supply of Extension Circular 48 on "Potato Spraying" is nearly exhausted, also the complete bulletin, but charts have been and are being prepared which will give a summary of results and Mr. Smith is already in correspondence with agents in some of our chief potato counties with the view of emphasizing the matter afresh by meetings and otherwise.

Correspondence.—Mr. Smith has handled a considerable amount of the correspondence on insect pests, especially during my absence.

Work Ahead.—When I consider the **lack of definite knowledge** among farmers, orchardists, and gardeners, in regard to the control of even the commonest and best known insect pests, the field for purely extension work seems unlimited. To get the really valuable information condensed and simplified into popular publications—to get them before the proper persons—and to get those teachings engrafted into practice, is a field offering a chance for energy, foresight, tact and skill, and its results must be, or should be, valuable almost beyond calculation.

Beekeeping Extension

This project, conducted in co-operation with the U. S. Department of Agriculture, has been continued by C. L. Sams with the same satisfactory results which have been mentioned in previous reports.

Beekeeping Organizations.—Aided by this work, the State Beekeepers Association held its third annual meeting in Asheville in January, at which time provision was made for the affiliation of county beekeeper clubs. Mr. Sams has aided in the formation of several of these.

Improved Equipment.—It is impossible to say exactly how much effect the extension work has in promoting the use of improved modern equipment, but it is beyond dispute that since this work was started in this State there has been a great improvement. As a result of the launching of this work a large supply house opened a branch at a location to serve many of our beekeepers. In three years the business of that branch in this State has increased six hundred per cent.

Sound Operations.—There is a tendency for new converts to be over-enthusiastic on the beekeeping business. A striking success the first year of operations is apt to induce the beginner to figure with pencil and paper, proving to his own satisfaction that there is easy money in larger operations, only, perhaps, to experience a set-back the next year. Consequently we are endeavoring to advise safely. In one single instance a beekeeper was saved from an investment in which he would have been likely to have lost several hundred dollars. At the same time we are encouraging experienced beekeepers, who know the fluctuations of the business, to expand their operations.

Stimulus.—Honey has come into its own with the sugar shortage, and the recently announced higher prices for sugar will maintain a large demand even when sugar becomes plentiful. Under this stimulus we expect a continued interest in the subject of beekeeping.

Respectfully submitted,

FRANKLIN SHERMAN,
Chief in Entomology.

REPORT OF DIVISION OF HORTICULTURE

To the Director:

The main activities in the extension work of the Division of Horticulture, during the past year, have been along the same general lines as reported in previous years. The work during the year has been somewhat handicapped due to the reduced number of workers. Some of the work started during 1918 by the emergency workers, provided by the U. S. Department of Agriculture, was not developed to any extent when the services of these workers were discontinued.

Recently, however, the personnel of the Division has been brought up to a point which places it in a position for adequately performing its function and enlarging its value to the horticultural interests of the State.

In October, Mr. Paul T. Schooley was appointed Extension Horticulturist for extension work in Horticulture.

To best serve the horticultural interests of the State, the extension and investigational activities of the Division are very closely co-ordinated. The information collected by the investigational workers of the Division is made available to the fruit and trucking interests through the work and campaigns of the extension service. The extension workers employ freely the "Extension Farm News," the daily press, and circular letters to aid in their campaigns, and in the dissemination of information. The work of the Division is conducted largely through the county agents, the home demonstration agents, fairs, and other local agencies.

State Fair Work

Considerable attention was given to the horticultural work at the State Fair. Due to the efforts of this Division, the horticultural exhibit last year was larger and more extensive than at any former fair. Nearly two cars of fruit were on exhibit. The exhibits were arranged and labeled with the intention of making them as valuable as possible from an educational standpoint. Over 50 varieties of fruit were shown. Over 30 varieties of apples displayed in barrels, boxes, one hundred lots and on plates were a feature of the fruit exhibit. In the vegetable exhibit, the 20 different varieties of Irish potatoes, and 19 varieties of sweet potatoes displayed, were of interest to many.

A model sweet potato storage house, built according to plans furnished by the Division, was exhibited, and drew the attention of many visitors.

Judging Horticultural Products at Fairs

It is a policy of the Division to furnish a member to judge the horticultural products at the fairs in the fruit growing sections of the State.

The horticultural premium list, with score cards for use of judges prepared last year and published in Bulletin 243, has proven to be of extreme value, because it emphasizes the growing of the most desirable varieties, the quality of products that are most profitably grown, and encourages the use of the most desirable pack and packages, as well as assisting in systematizing and improving the horticultural exhibits.

In judging at the fairs, we are able to encourage the production of good marketable fruits and vegetables, rather than overgrown, ungraded, diseased and insect injured material. Incidentally, the highest types of cultural methods are encouraged. In this way, the horticultural exhibits and the judging work at fairs is of great educational value in improving and increasing the horticultural products of the State.

Extension Work in Pomology

1. **Extension Work and Orchard Demonstration Work** (C. D. Matthews, H. L. Hutt and Paul T. Schooley)

Each year there is an increased number of calls for orchard demonstrations, orchard meetings, and for assistance in solving individual orchard problems. Paul T. Schooley was appointed to the position of Extension Horticulturist in October to conduct this work. Under temporary appointment, H. L. Hutt conducted a greater portion of the Orchard Demonstration Work last winter and spring. Demonstrations in pruning and spraying were given, as well as in other orchard practices. Advice and assistance were furnished in locating, in planting orchards, and in the selection of the most desirable varieties. Orchards were examined and recommendations made to the owners regarding the best methods of management. Lectures were given on horticultural subjects at several schools and colleges. One hundred and forty-five meetings were held in 22 counties. The total attendance at these meetings was close to 1,600.

Orchard demonstration work is an important factor in the development of fruit growing in the State, as it informs the growers of the most approved methods in use. It encourages the adoption of the most up-to-date practices in fruit production. Through the work of orchard demonstration, many orchards are placed on a paying basis that otherwise would be liabilities.

2. **Demonstration Home Orchards** (C. D. Matthews, H. L. Hutt and Paul T. Schooley)

It has been the plan of the project, started in 1917, to plant one or more one-acre demonstration orchards in each county, so as to encourage the planting of home orchards on the farm. The demonstration orchards are located in co-operation with the county demonstration agents, and under their supervision. The plantings are composed of varieties found by this Division to be most desirable for the different sections of the State. These orchards are to be used by the extension workers of the Horticultural Division, in co-operation with the county demonstration agents, to demonstrate correct methods of pruning and other cultural practices.

During the past three seasons, approximately 150 of these orchards have been planted. A majority of the orchards have developed very satisfactorily, while a few have been decidedly unsatisfactory, depending upon the care given them. The degree of success of the orchards in almost every case, has been in proportion to the amount of attention given them.

One or more demonstration orchards in every county, composed of the most desirable varieties, correctly planted and properly cared for, will encourage an increase in the amount and quality of fruit grown for home consumption and local market.

3. **Orchard Survey Work** (C. D. Matthews and H. L. Hutt)

Considerable time was spent during the year in conducting a peach orchard survey of the most important commercial peach section of the State, the sand hill section in Moore, Montgomery and Richmond counties. In the survey, an attempt to record the size, age, list of varieties, methods of handling, location and owner of each orchard in the section was made. Over 100 of the commercial orchards were visited, and much data of importance to the peach industry was secured.

Extension Work in Vegetable Culture

1. **Sweet Potato Storage House Construction** (C. D. Matthews, W. R. Thompson, F. L. Harkey, L. H. Nelson and Paul T. Schooley)

The sweet potato storage house construction campaign was continued during the year. A co-operative arrangement was made with the Bureau of Markets of the U. S. Department of Agriculture, by which W. R. Thompson and F. L. Harkey, specialists in sweet potato storage house construction, were detailed for a few months' work in North Carolina, under the immediate direction of this Division. These specialists and members of the Division, working in co-operation with the demonstration agents, visited growers interested in the storage of sweet potatoes, and furnished them with plans of construction, specifications, and bills of materials for building the storage houses. In some cases, assistance was furnished these growers who built houses. Advice and instruction in the operation of storage houses were given to those growers who had already built houses.

The exact number of houses constructed this year has not been determined as yet. Nearly 300 plans of houses were distributed during the year. Two 10,000 bushel co-operative houses were built, and are in operation. The average loss in the type of storage houses recommended has been less than five per cent during the past year.

Due to the lack of workers, no active field work was done with the garden project and the drying and dehydration project, which had been developed in 1918, largely by the emergency workers. However, numerous letters and inquiries relating to these subjects were answered.

Respectfully submitted,

C. D. MATTHEWS,
Acting Chief, Division of Horticulture.

REPORT OF DIVISION OF MARKETS AND RURAL ORGANIZATION

To the Director:

This report is for the year ending December 1, 1919, and covers the investigations, extension and service work of the Division of Markets and Rural Organization, conducted jointly or separately by the North Carolina Department of Agriculture and the North Carolina State College of Agriculture and Engineering, in co-operation with the United States Department of Agriculture under the agreements and plans entered into by these institutions for the conduct of all agricultural work of this kind in the State.

Warehouse Surveys

In 1913, the North Carolina Division of Markets, in co-operation with the Federal Bureau of Markets, made the first survey of cotton warehouse and credit facilities in North Carolina. The counties producing 3,000 or more bales of cotton per year had a storage capacity of 88,875 bales, exclusive of private and mill warehouses. In fact, the first survey of warehouse facilities in the United States was begun in North Carolina. In 1914, when the price of cotton dropped to six cents a pound, another survey made by the Division of Markets showed that an additional warehouse capacity had been developed to meet the emergency of the war, amounting to 181,015 bales capacity above what was available to farmers before the war. Of this amount, room for 46,100 bales was provided by the cotton mills. This was a time when the farmer had to hold his cotton, or make a great sacrifice. What is more, the merchants and other business interests in the cotton belt could not afford to allow such a sacrifice.

The survey of North Carolina warehouses, made this year, is not complete enough to show the exact capacity of storage houses now available for farmers; but it does indicate, as in 1913, that most of the cotton warehouse space is controlled and used by buyers. Even warehouse companies, which operate public warehouses, generally prefer to store the cotton of buyers, rather than that of the ordinary farmer, as the expense of storage of small amounts is too high to be profitable. The greater rate of cost for storage of farmers' cotton, when it is sold in small lots, should be considered. This extra cost, however, may be met if the farmers' warehouse companies will employ a manager who is capable of acting also as a sales agent for the depositors of cotton. Then the cotton can be sold out in large, even running lots. Our cotton survey has shown that the farmer producing many bales usually obtains a higher price for his cotton.

If the farmers were organized to market their cotton in large, even running lots, through their own warehouse companies, they would not be selling cotton now at one to four cents below the market, and would not be losing in most places from five to twenty dollars per bale. The State Warehouse Superintendent, in carrying out the provisions of the State Warehouse Act, will be in an excellent position to assist any farmer or merchant who has cotton stored in State warehouses to market his cotton, as the law requires that the Superintendent keep a record of the grade, staple and weight of all cotton stored in the State System. To efficiently carry out the provisions of the law, to assist depositors of cotton to market their cotton,

it will be necessary for this Division to make its present weekly price report a daily report for cotton. This will be necessary for the information of the Superintendent and of the depositors of cotton. The State Warehouse Act requires that all cotton stored in a State warehouse be graded. This can be done by our State graders or by graders licensed under the North Carolina standard grading law or under the United States Warehouse Act. On the other hand, if the warehouse company acts as a marketing agency for its depositors, it will make our grading service more effective, as it has been found that buyers generally will not buy cotton on the basis of State grades, unless the seller is in a position to find other markets where the cotton may be sold on the basis of such grades. Thus, the State Warehouse System, to be effective, has to be combined with the organization work, cotton grading, market news service and sales work of the State and Federal Bureaus of Markets. Such a complete system will have all the necessary elements of success in it for the operation of the State and Federal Warehouse System.

Grain and Soybeans

Surveys have been made of roller mills to find out the demand for corn. Last year, North Carolina mills were in the market for a considerable amount of North Carolina corn, but this year improvement of transportation and decreased demand for corn as a substitute for flour has made the mills less interested in home-grown corn. Lists of interested mills and buyers have been furnished to growers and shippers of corn. The great difficulty of farmers shipping their own products has been lack of warehouse space. The Hyde County Grain Exchange, organized by this Division, may be said to have failed largely because of lack of any warehouse for assembling corn, soybeans and oats. This county alone loses, yearly, approximately $25,000 for lack of proper marketing facilities.

Wholesale receivers do not care to buy direct from farmers who are not prepared to make immediate delivery in the quantity wanted. The proposed warehouses at Elizabeth City and New Bern, together with the one already existing at Washington, would enable many of the farmers of our corn belt to store corn for spring and summer sale, when local corn has been sold and when prices are as high as, or higher, than the price of western corn delivered in this State. A warehouse company, with an efficient sales manager, can guarantee quality of grain and develop a reputation for business methods.

A survey of the market for soybeans has also been made through letters addressed to seed houses and to marketing agents in other States. Prices producers secured for soybeans have been found to be $1.50 to $2 per bushel, as compared with $3 to $4 last year. After the farmers had sold practically all of their soybeans, the price went to $3 per bushel, or better. The opinion is held that if growers had been organized to store their soybeans and to market them when the trade had sold out its holdings of last year's stock, growers would have been able to receive three dollars a bushel for their crop. One or more county agents have had trouble with receiving seed that would not germinate. The remedy seems to be for farmers to organize warehouse companies in accordance with the warehouse and cooperative laws of North Carolina, put their soybeans in storage, clean and grade them under the provisions of the North Carolina Standard Grading

Law, borrow money if need be on their warehouse receipts, and be ready to sell in large, even running car lots direct to wholesale seed houses, or to farmers' clubs, through State marketing officials and county agents, when prices are satisfactory.

Peanuts

A survey in person was made of the market for peanuts in Suffolk, Norfolk, New York and Philadelphia, and by letter or wire of the Pacific Coast and Southern markets. Very soon after the armistice was signed, Virginia peanuts dropped in price to the producers, from nine cents a pound to four and five, a decline that has no parallel in any other food product. Farmers were unable to sell more than a few peanuts at any price. The trade had a considerable hold over from last year, and after the demoralization in prices, was only willing to buy from "hand to mouth." The cleaners appeared to fear that the removal of the embargo upon foreign peanuts by the War Industries Board would cause all American markets to be flooded with low price nuts. As prices quickly recovered, the removal of the embargo proved to have only a temporary effect. Cleaners claimed that maintenance of war prices to producers would not permit of consumption of the larger crop assumed, but admitted street venders were selling peanuts to consumers at war prices, and making from $15 to $25 a bag profit. Farmers are estimated to have sold peanuts with little profit and in most cases with some loss, the loss ranging in some cases as high as $25 per acre. One of the leading manufacturers of peanut butter, candy, and salted peanuts, was of the opinion that conditions would have been greatly improved if cleaners had carried on an advertising campaign to dispose of peanuts through the retail grocer, as soon as the War Industries Board declared peanut marketing by street venders as a nonessential industry. In May and June, after farmers disposed of most of their crop, prices recovered a large part of the slump, rising to seven and eight and one-half cents a pound for Virginia nuts. Circulars, based upon these investigations, which we issued, helped to give farmers confidence at a time of general business demoralization. Most farmers have no suitable storage facilities for holding peanuts. Besides, a large part of the crop is owned by tenants or small farmers, who are obliged to sell at some price. For any plan of organization to be effective, the membership would need to control a large part of the crop. Provisions would have to be made for financing the holding of the "distressed" peanuts, proper storage facilities built, and arrangements made for the growers' exchange to enter into a collective bargain with the cleaners. A collective bargain, as worked out by the California prune and strawberry growers, and by milk producers in other states, must include in the contract detailed provisions as to grades, rate of sale, and price. The program of the Virginia-Carolina Peanut Exchange does not seem to meet these minimum requirements. The warehouse companies, being organized in the peanut belt, are making plans to solve these problems.

Sweet Potatoes

A survey was made of sweet potato storage houses, variety, place of disposal, and prices received. This information showed that the demand during the past year for sweet potatoes in storage houses was generally sufficient in local markets. In a few places, southern late sweet potatoes are

shipped north, but the most of the crop is sold either on local markets or near-by markets in the State. In any event, prices have generally been so good this year, ranging from $1.50 to $2 per bushel, that little selling assistance has been necessary.

Mountain Products

In the western counties of the State, investigations have been carried on in varieties, culture, harvesting, grading, packing and storing and marketing fruits and vegetables; especially apples and Irish potatoes. These investigations have shown the need of a few standard varieties adapted to this section, properly grown, harvested, graded, packed, stored and marketed. One thing needing special emphasis, in culture of both apples and potatoes, is spraying. This need has been realized in the case of apples, and is coming to be realized in the case of potatoes. Marketing investigations have revealed, in the case of potatoes, with an occasional rare exception, that late summer and early fall are the best times for farmers in western North Carolina to sell their Irish potatoes. The western North Carolina potatoes can be dug and put on the southern markets before the big eastern, northern and western crops can reach these markets, at a time when the eastern shore and southern Irish potatoes have been cleaned up, and the demand for potatoes is good. Only in years, when the potato crop over the whole country is below normal, has it paid western North Carolina farmers to hold their Irish potatoes until winter or spring.

Hogs

A careful survey of the fat hog marketing situation showed that the prices obtained on local markets last fall and winter were in most cases relatively higher than packer markets. This was especially true with soft hogs, as local markets almost invariably paid as much for soft hogs as for hard hogs, while packer markets deducted from 2 to 4½ cents per pound for soft hogs. However, about February local prices began to drop and by March were considerably lower than packer markets. This condition was favorable for encouraging and making co-operative car lot shipments to packer markets. Eighteen such shipments were made. In the past, North Carolina hogs have been sold locally, a greater part of them going on the market as dressed hogs and as cured meat. However, with the adoption of the co-operative plan of selling, it is thought that selling on foot will rapidly grow in favor. The co-operative marketing of hogs is being urged where local markets are out of line with packer markets. The determination of whether hogs are hard or soft by packers has caused dissatisfaction and discouragement among farmers who have taken pains to harden their stock. It now seems evident that it will be necessary to have a disinterested party stationed at packing centers to determine whether hogs are killed hard or soft. It is thought that if such an arrangement can be made, many more North Carolina farmers will harden their hogs before marketing them.

Beef Cattle

The method of marketing feeder, stocker and butcher cattle, in the western part of the State, is being given considerable study. A large per cent of these cattle are sold by growers to dealers, who contract for them any-

where from one to six months prior to date of delivery. The prices obtained by growers are usually considerably below the actual value of the cattle. Growers are being encouraged to ship their butcher cattle to packer markets, rather than sell to local dealers, and some growers have shipped cattle this year for the first time with satisfactory results. During the past fall, considerable assistance has been given in selling feeder cattle by bringing grower and feeder together and several sales have been made in this way. However, this plan is only fairly satisfactory. Plans are now under way for holding two big feeder, stocker and butcher cattle sales at two different points in the western part of the State during the fall of 1920. It is thought that this plan of selling these mountain cattle will be more satisfactory to the grower than the old plan and at the same time encourage the raising of more cattle. Co-operative shipping of grass-fat butcher cattle to packer markets is being encouraged, and a few such shipments have been made this year.

As a rule, heavy cattle command the best price on packer markets. Cattle feeders frequently object to North Carolina feeder cattle on the grounds that they are not large enough when put in the feed lot so that they will command the highest prices when finished. This fault could be overcome if the cattle raisers would keep their cattle a year longer before selling to cattle feeders.

The plan of marketing fat cattle in the central and eastern part of the State has also been investigated. A large per cent are sold to dealers who travel over the State. The feeders seem to prefer this plan of marketing, rather than shipping them to packer markets to be sold through commission men. When cattle feeders have a carload of cattle, and are posted as to the cattle market, they usually obtain a fair price for their cattle from these dealers. However, when a cattle feeder has only a few cattle for sale, or is not posted as to markets, it is quite likely that he will sell his cattle considerably under actual value. This office is encouraging cattle feeders to ship their fat cattle to packing centers, rather than to sell them to traveling dealers.

It has been found that a large per cent of the cattle fattened in the State are sold before sufficiently fat to command the highest price at market. This is due largely to the fact that insufficient concentrates are fed, rather than to the length of the feeding period.

Sheep and Wool

While there are relatively large numbers of sheep in the eastern counties of the State, very little attention has been given to marketing them. They are raised in small farm flocks and farmers have been taking whatever they could get for them. Prices have not been such as to encourage improved breeding; consequently the quality is somewhat inferior. Practically all sheep have been sold to local markets and consumed within the State. The co-operative shipments to northern markets during the past few months have caused the farmers to understand they can get full market value for their lambs and sheep, and new interest is being aroused in the industry. One great need, if they are to secure the best prices on northern markets, is improved breeding and care.

Western and central North Carolina farmers grow sheep in larger flocks, give more attention to breed and care of flocks, have better marketing facilities, and obtain better prices. In this section, many good local markets are available, and in some cases dealers buy and ship to northern markets. While this situation is far from ideal, it is much better than in eastern North Carolina where buyers make purchases in small lots and operate on a larger margin of profit. The shipment of lambs to northern markets, from the extreme western counties of the State, is not so satisfactory as from the eastern counties, on account of distance and poor shipping facilities, which cause more or less loss en route. However, after arrival at market they command a higher price than eastern North Carolina lambs, due largely to improved breeding.

During the summer of 1919, six co-operative car lot shipments of lambs were sent to northern markets with very satisfactory results. In one case, the net price received was double the price offered locally. This plan of marketing will be pushed during the coming year.

The quality of wool produced in central and western North Carolina is good. A large per cent of it is sold to traveling buyers, who usually pay only one price for wool of a particular section, regardless of quality. The payment by buyers of a flat price for wool, as for cotton and other farm products, does not encourage the production of the best quality. The price obtained for this wool has always been low enough to allow the buyer a big profit. In the eastern counties, a poorer grade of wool is produced. The plan of marketing this wool is the same as in the western part of the State, but it usually sells for considerably less. Taking the State as a whole, there is a decided need for a better plan of marketing both wool and lambs. On the other hand, there is need for improved blood in the flocks, and better care and feed is needed in many cases.

During the past summer, several co-operative sales of wool were made. In some cases, the wool in a county was collected and held in storage until a satisfactory bid was made. In other cases, small co-operative shipments were made direct to woolen mills. On August 20, wool from eight counties in the State was collected and shipped, under the supervision of county agents, to the Philadelphia market where it was assembled, graded and stored, and later sold. This plan of selling wool is only fairly satisfactory. It is thought a better plan would be to assemble and store it in three or four convenient places in the State, and later offer it at auction. Plans are now under way for holding at least two such sales next year.

The Organization of the State Warehouse System

Since early in September, when the present State Warehouse Superintendent was appointed, the warehouse regulations have been revised and printed; a form of North Carolina and United States negotiable warehouse receipt together with coupons, has been drafted and printed; forms for non-negotiable memorandum receipts and warehouse licenses have been drafted and printed; and a form of bond for bonding local warehousemen has been drafted and approved by the Assistant Attorney General. The non-negotiable warehouse receipt is to be given by the local manager of a warehouse to the depositor of cotton, and later is to be exchanged for a

negotiable warehouse receipt when the cotton stored has been insured, weighed and graded. The main changes in the revised regulations, as approved by the Warehouse Committee of the State Board of Agriculture, are (1) to make the local manager responsible for the enforcement of the regulations under the United States Warehouse Act as well as of those under the North Carolina Warehouse Act, and (2) to reduce the privilege fees charged warehousemen from five cents to one, three or five cents per bale per month. The amount of charge varies according to the saving on insurance to the warehouse. The previous flat charge of five cents per bale per month was prohibitive. The bond of $100,000 required under the State Warehouse Act has been arranged for the State Warehouse Superintendent with much difficulty, due to the present wording of the Warehouse Act.

According to Section 17 of the Warehouse Act, the State Warehouse Superintendent is required to insure and keep insured all cotton stored in State warehouses. The present State Warehouse Superintendent has invited all general agents, brokers and representatives of the local insurance agents to submit proposals which would meet the requirements of the law. To date only one agency has offered any such plan. The plan offered by this agency has been accepted, subject to the condition that it remains the best plan offered. By this plan all warehouses brought under the State Warehouse System, which have as good a system of inspection as that of the Federal, will obtain a twenty-five per cent reduction on existing insurance rates, provided they are non-sprinkler warehouses, and ten per cent reduction if they have a sprinkler system. It is further agreed that a floater policy of $300,000 will be issued to cover each warehouse which will protect the State from any loss on account of any carelessness up to the amount of $300,000. The records of this office are accepted as legal evidence of the cotton insured up to this amount. Any amount either in excess of or under $300,000 may be taken out as a specific insurance with any company acceptable to the warehouse owners and to the State Warehouse Superintendent and Insurance Commissioner. If any other agency should offer a better plan the floater policy should be required, and the other essential principles of this arrangement should be held to as fundamental for the protection of the State against loss. With the arrangement of this tentative agreement by the present State Warehouse Superintendent, the State Warehouse System was made ready to operate on October 29th.

The warehouses of the State have been canvassed by letter once before the first of September, and twice since, to invite them to come into the State and Federal Warehouse System. Since the first of September, copies of Warehouse Bulletin, revised regulations, license blank, and of warehouse receipt, have been mailed to each of the three hundred and thirty-six names we have on our warehouse mailing list. In addition, a beginning has been made on a personal canvass of all the principal warehouses in the State, which should be continued until completed in order to give an opportunity for each warehouseman to ask questions and to have them answered. This canvass will also serve to obtain a complete list of warehouses now active or available. Two applications for license have been received, and one approved.

The mill warehouses now do not need the credit of the State to increase the value of their warehouse receipt as collateral for borrowing purposes. When the ever-recurring periods of money stringency come again, many of the mill owners may be glad of the support of the credit of the State to increase the borrowing power of their warehouse receipts. The same will be true of the buyers' warehouses which constitute almost all the other warehouses of the State. Most of the farmers' warehouses, which were once scattered over the State, have passed into other hands.

No special appropriation was allowed for this warehouse work by the Board and, therefore, it has not been possible to employ additional assistants. The warehouse work will need to be made as strictly an educational project as any other line of work conducted by the Agricultural Institutions of the State. There is no more reason why the warehouse project should be made to pay its own way, than any other line of production or marketing work. Warehousemen are not going to come under the State and Federal System until they understand fully the requirements of the Warehouse Acts and Regulations, and the advantages of operating a warehouse under this system.

PROMOTION AND ASSISTANCE IN THE MAINTENANCE OF WAREHOUSE AND MARKETING ORGANIZATIONS

Organization of Warehouse Companies to Operate Under State and Federal Warehouse System

The low price of cotton last spring and summer and the losses suffered from holding cotton out-of-doors has made this a favorable year for the organization of warehouse companies for operation in the State and Federal Warehouse System. Farmers generally have shown an interest in organizing warehouse companies under the co-operative and Warehouse Acts of North Carolina. Then the field is comparatively clear for starting such projects, as most all of the farmers' warehouses have gone out of existence and most of those warehouses in existence are under the control of cotton buyers or mill owners. However, the tenth of September, when the present State Warehouse Superintendent was appointed was a rather late date for promoting warehouse companies this year.

A plan of organization of a warehouse company was worked out in connection with the Chowan Co-operative Warehouse Company which the present Acting State Superintendent of Warehouses promoted in co-operation with the County Agents of Hertford and Bertie counties. By-laws and a form of stock subscription blank were furnished this organization. The company plans to operate a chain of warehouses under one manager and to store and market cotton and peanuts. The farmers in these two counties have not pushed the sale of sufficient stock to build the three warehouses planned, as it has been decided that the present high prices do not warrant the holding of cotton.

Though this may not be a good time for holding cotton, it is highly important that farmers, bankers and merchants use the present time of prosperity and surplus funds to organize a warehouse company and to subscribe sufficient capital which can be utilized for building warehouses another summer when material may be bought at lower prices. However,

if the capital is not collected now the present surplus of money may be spent and therefore would not be available for warehouse construction in time for meeting the great need for warehouses in the future.

A plan for a chain of warehouses has been adopted and carried out by the Northampton Warehouse Company which has thirty-four thousand dollars subscribed toward building three warehouses at Seaboard, Jackson and Rich Square. Two of these warehouses will be built at once. This company also plans to market as well as store both cotton and peanuts and to secure a competent manager for this purpose. Competent managers will need to possess ability to act as sales agents as well as warehouse managers. Farmers seem to be willing to pay a guaranteed minimum salary of $1,500 to $2,400 with a percentage of net profits to be given as a bonus which, together, should make a salary of $2,500 to $4,000 per year. At least one other such warehouse company should be organized in the peanut belt in order to construct and operate warehouses in Washington and Martin counties. A banker and the County Agent at Plymouth are ready to proceed as soon as the services of an organizer can be secured. A company with a paid-in capital stock of $5,000 has been formed to build a warehouse at Conetoe. However, this warehouse company had best be made a part of the company which will be organized at Plymouth.

Larger concentration warehouses should be built at New Bern and Elizabeth City to store cotton, corn, soybeans and any other products which are brought from nearby or distant sections for disposal on these markets. Washington, with similar conditions, has a storage warehouse with a capacity of 6,000 bales, which shows what a warehouse can accomplish. It is one of the very few purely public warehouses in the State. This warehouse stores cotton, corn, soybeans and other products of commerce. It has a very low insurance rate of 20 cents per hundred. Automobile dealers find it profitable to store machines in this warehouse because of the saving in insurance. Some plan should be worked out to enlist the farmers of Hyde County to take an interest in this warehouse, as undoubtedly they will if this warehouse company obtains an efficient sales manager and if a canvass is made to show them the advantages of assembling their products in a warehouse. However, all warehouses, especially those located in the territory tributary to Norfolk, to serve their depositors must have efficient sales managers. To find efficient sales and warehouse managers with ability to keep track of markets for such diverse products as cotton, peanuts, soybeans and corn, will be one of the most difficult tasks confronting the Division of Markets. Upon the solution of this problem will depend the development of an efficient marketing system for handling the farm products of the whole northeastern North Carolina.

The companies which are being organized in northeastern North Carolina will look to the State Warehouse Superintendent to carry out fully the provision of the law which gives him the authority to market the cotton stored in all warehouses upon the application of the owners. Warehouse Companies to build warehouses and operate them under the State System, are also being formed at Greenville, Warsaw, Clinton, Fayetteville, Angier and Monroe. Eight warehouse companies being thus promoted have a subscribed capital of approximately $160,000. There are good prospects for warehouses at Smithfield, Dunn, Lumberton and Rowland. If possible

the warehouses to be built at Clinton, Warsaw, Burgaw and possibly Faison, should be operated as a chain of warehouses by one company under one first-class manager, with assistant managers for each warehouse.

Such cities as Fayetteville, Raleigh, Goldsboro, Wilson and possibly Wilmington, should become great concentration points according to a plan similar to that adopted at Spartanburg, South Carolina. At Spartanburg, auto trucks bring in cotton from thirty miles around at a cheaper rate than freight. However, the auto truck in localities where production is more scattering, might not be feasible. If the railroads will extend the storage-in-transit privilege to all these cities, successful operation of large warehouses in them will be assured.

The North Carolina Warehouse Law is so drastic and complete in its provisions for safeguarding the warehouse receipt, that bankers usually have shown a positive interest in our warehouse organization work, and should be expected to land every effort to co-operate with farmers and business men to build warehouses. The State and Federal warehouse receipt will furnish the bankers the very best security with which to secure funds in time of money stringency.

If, however, farmers do not proceed at once, buyers will erect warehouses of their own and pre-empt the field. For the farmers to control their own warehouses, so that they can store when the need is greatest, the State Department will need to provide the necessary funds for the Division of Markets to have one organizer in the field full time for the next six months to a year. This will assure such understanding of the Co-operative and Warehouse Acts in the promotion of the warehouse companies as to conserve the farmers' interest, and to assure that all companies promoted will come into the State and Federal System as soon as formed.

Any Farmers' Warehouse Company which is not formed under co-operative law, is likely sooner or later to pass out of their hands. This is another important reason why some one should be appointed as organizer, so as to instruct the farmers in the advantages of co-operative law. The co-operative law gives farmers authority to restrict membership to those agreed in their purpose, to limit voting power to one vote to each member, to limit dividends to six per cent, and to pro-rate surplus profits to depositors of cotton and other products in proportion to the amount stored. This pro-rating of surplus profits will give depositors a reduced storage rate at cost, and thus encourage a maximum use of the warehouse by farmers.

According to investigations made by the Federal Bureau of Markets in this and other States, cotton on an average is damaged by weather exposure two dollars and a half per bale. If this amount were saved each year, it alone would build the warehouses for the State Warehouse System. If each farmer in North Carolina would invest at the rate of three dollars per bale, this, with the help of business men, would build most of the warehouses needed in the cotton producing counties. Thus, the saving from weather damage would pay every farmer to own stock on the basis above specified as a part of the necessary equipment of his farm, in fact, quite as necessary to a cotton farmer as a barn for storage of farm machinery and feed.

It will be a great help to make the warehouse company pay expenses

including dividend and a fund to cover depreciation of building, if arrangements are made in each county to have the official weigher of the warehouse appointed by the county commissioner as an official weigher for the county.

As soon as a half dozen warehouses are in operation under the State Warehouse System, weekly and monthly reports should be issued for warehouses similar to those now issued for the credit unions. These reports should be sent to all shareholders of warehouse companies or to owners of warehouses, and to North Carolina mill owners and to any interested mill owners outside of the State. This will maintain the interest of shareholders and draw the attention of the mill owners to the kind of cotton available in North Carolina warehouses. Statements should indicate cotton received each week and delivered, and amount on hand of each grade and staple.

Promotion and Maintenance of Marketing Associations

A new organization known as the Eastern Carolina Produce Exchange, with central office at Aurora and branch offices at Washington and Pantego, has been promoted by this office for marketing Irish potatoes. The membership of this organization is already sixty-one, and the acreage which was contracted to be handled through the exchange amounted to six hundred and thirty. This exchange marketed 150 cars of potatoes during June, 1919, with an estimated saving to the growers of from $15,000 to $25,000. The average net prices received by growers from 21,889 barrels of grade one was $4.70 per barrel and for 3,778 barrels of grade two $2.50 per barrel, or an average net price of $4.45 per barrel for all grades. This exchange designed and adopted an excellent brand, and had the brand and grade printed on its cloth top barrel covers, which added greatly to the selling value of its potatoes. This Division licensed the four inspectors of the exchange and furnished the service of a supervising inspector so that the exchange had authority to and did issue certificates of grade according to the provisions of the Standard Package and Grading Law. With the Carolina Potato Exchange at Elizabeth City, and the new exchange, there will be organizations in all leading early Irish potato producing sections, except the Mt. Olive section, where several unsuccessful attempts have been made to organize.

The Carolina Potato Exchange which was organized by this Division in the year 1914 marketed for its members this year 169 cars of Irish and sweet potatoes. The 42 cars of Irish potatoes netted the growers $4.46 1-2 per barrel. The 7,258 barrels number ones netted $4.52 per barrel and the 212 barrels of number twos brought the growers $2.36 per barrel. The 21,572 barrels of Big Stem Jersey sweet potatoes grade one brought the growers $4.77 per barrel and the 577 barrels of grade two $2.56 per barrel.

An assistant manager was furnished to the Tabor Produce Exchange this year, who assisted the exchange to market twenty-five cars of strawberries. One cold storage and marketing association for handling apples, potatoes and cabbage in the mountains, and one strawberry association in eastern North Carolina are being promoted. A representative of this Division acted as manager for the Mountain Growers Exchange, and from the branch office located at Waynesville, looked after the marketing of

perishable products grown in the mountains. Six cars of late Irish potatoes United States grade one sold early in August netted the members of the exchange $1.83 3-5 per bulk bushel. The potatoes sold in October brought the members $1.53 per bulk bushel.

Representatives of the Division of Markets, and of the Federal Bureau of Markets, co-operated with the members of the Edgecombe Cotton Exchange to secure a reorganization of the association. The Exchange entered into a contract with members which was enforced by a note to cover damages for non-fulfillment, to market about 1,500 bales of cotton for the members. This cotton was stored in a warehouse to await the rise of prices.

Growers have been assisted in marketing 18 cars of hogs and 6 cars of lambs co-operatively, and in selling approximately 12 cars of cattle. Plans are under way for organizing 4 co-operative livestock marketing associations. In most cases, they have resulted in a considerable saving to shippers. One car lot shipment resulted in a saving of $591.39 over price offered locally.

Organization, Incorporation and Supervision of Credit Unions

Twelve new credit unions have been organized and three old credit unions given a new start. The resources of the North Carolina credit unions have increased from $25,325.98 in 1918 to $53,437.07 on September 30, 1919. Less money is borrowed from the banks and more obtained from shareholders and depositors. The credit unions of this State have doubled in resources each year from the beginning of the work. If this rate of growth continues, their resources in five years will amount to $1,600,000. Wherever a community possesses leadership and experience in co-operation, credit unions are easy to organize and maintain. The difficulty is the general absence of disinterested leadership in the country community.

It has been proven in North Carolina, as in European Countries, that credit unions are of assistance to the banks, which are selected as depositories in bringing savings to them. The Bahama Credit Union increased its deposits about eight thousand dollars in four to six months. This credit union is in a county of the State in which the bankers had carried on a campaign covering the county to obtain deposits. It was found that forty per cent of the depositors of the Bahama Credit Union had not been doing business with any bank before. The bank pays the credit union four per cent, and the latter agency pays members or non-members four per cent for deposits. The credit union pays its own expense out of the profit on the loans it makes to its members for which it charges six per cent.

The credit unions in this State grant their main loans to assist their members to make co-operative cash whole sale purchase of fertilizer. This is evident from the following very excellent report which was made by the Treasurer of the Carmel Credit Union.

Loans Made by the Carmel Credit Union and Savings Made by Members through Co-operative Purchase of Supplies from Jan. 1, 1919, to June 1, 1919.

Money Borrowed	Amount Borrowed	Estimated Time Price and Interest	Amount of Saving Through Cash Purchase
For fertilizer	$ 2,360.00	$ 2,714.00	$ 354.00
For mules	150.00	165.00	15.00
For food and feedstuff	350.00	385.00	35.00
For labor	265.00	265.00	
For farm machinery	115.00	126.00	11.00
For cows	500.00	550.00	50.00
For milk trucks	500.00	600.00	100.00
For holding cotton	560.00	760.00	200.00
For digging well	100.00	110.00	10.00
For repairing barn	75.00	82.50	7.50
To secure farm loan	300.00	322.00	22.00
Totals	$ 5,275.00	$ 6,080.00	$ 805.00

Time of loan: 60 days to 12 months.

No. borrowers: 22. Saving to each borrower, average $36.59.

No. notes made: 32. Average loan, $165.00.

Bought 60 bus. soja beans

$165.00	Individual purchase price cost
117.00	Co-operative purchase price cost
$ 48.00	Saving

Enabled 20 bales cotton to be held for 2c. lb. better price. Saving $200.

The interest in our credit unions is widespread. We have co-operated with persons throughout the United States who are interested in promoting co-operative credit legislation, and organization of credit unions among farmers and wage earners.

The progress of our credit union must be slow until farmers realize the necessity to organize for co-operative credit, in order to be free to buy where they can buy cheapest, and free to sell where they can sell to advantage. Farmers who are dependent upon the supply store form of credit are not free to co-operate to market their products through organizations controlled by themselves. This has already been proven true of cotton, peanuts, and potatoes in this State. The credit unions, in providing credit for farmers at a more reasonable rate than supply merchants, are not making their profit from the sale of farm supplies, and therefore have no interest in restricting diversification in agriculture. A progressive agriculture cannot be expected among farmers unless they are in control of their own system of credit, and are free to grow what they choose. Farmers have the alternative of wasting their surplus in expenditure for luxuries or in building up a supply of credit under their own control which they can use in hard times when the need for credit extension is

general and when bankers never have sufficient money to meet the needs of the rural community at large, when in fact the bankers say they can only look after their regular customers. The war has given the farmers a surplus. If they do not use it to build up their own credit organizations, they may have to again bear the burden and expense of the old supply store system.

During the war, rising prices have greatly increased the profits of farming, as of other industries. But, as soon as falling prices set in, costs will be high for the production of farm products, margin of profits will be small or disappear entirely, and advances, or some form of credit, will again be needed in greatly increased amounts, in order to run the farm from one crop sale to the next. In the next few years, therefore, the organization of credit unions will be much more urgent and rapid in this State, for the ground has been broken, and the favorable attitude of mind on the part of the farmers slowly created, so that they are beginning to realize as never before, the value of their own community system of credit.

The last financial statement of the North Carolina Credit Unions is as follows:

MONTHLY FINANCIAL STATEMENT OF NORTH CAROLINA CREDIT UNIONS AS ON SEPTEMBER 30, 1919

Name	Date Opened	Members	Depositors	Payment on Shares	Deposits	Loans	Borrowers	Borrowed from Banks	Cash in Banks	Total Resources
Valdese	Feb. 10, 1917	83	105	$ 2,350.00	$13,702.41	$15,263.73	23	$	$ 1,291.46	$ 16,999.55
*Bahama	April 14, 1916	45	73	570.25	8,545.11	7,775.00			441.45	12,869.48
Carmel	Jan. 26, 1916	113	39	2,039.50	1,636.05	5,260.00	25	1,550.00	219.74	5,593.42
*Sharon	Feb. 10, 1916	73	62	791.85	1,862.19	3,400.00	17	850.00	328.98	3,747.92
Lowes Grove	Jan. 20, 1916	56		1,012.50	837.78	2,970.94	20	1,050.00	42.84	3,112.50
Mount Ulla	Jan. 29, 1918	67	11	590.00	246.90	2,555.22	10	1,638.72	21.37	2,633.51
*Piedmont	April 19, 1918	75	2	867.28	169.75	1,092.33	10	100.00	119.06	1,219.99
Drowning Creek	Mar. 16, 1916	33	5	352.14	45.95	999.48	7	700.00	110.85	1,146.73
Oakdale	Feb. 16, 1916	27	1	218.50	113.58	700.00	10	605.00	185.48	997.84
Eureka	Mar. 17, 1916	30	3	488.75	204.82	388.68	3		309.59	703.09
*Sadler	Mar. 14, 1918	38	3	510.00	175.00	450.00	3		228.30	699.95
Wendell		36	12	86.00	359.22				452.66	582.72
*Angier	Dec. 20, 1918	35	1	454.00	100.00	500.00	1		65.50	565.50
Laurel	Mar. 10, 1917	42	6	510.75	15.50	75.00	1		81.48	554.03
*Lakeview	Jan. 20, 1918	8	3	230.00	7.50				238.25	238.25
Juniper Level		25		194.50					205.75	205.75
*Mount Vernon	Sept. 10, 1917	13	3	100.00	71.64	20.81	1		154.42	188.88
Dundarrach	Feb. 21, 1919	14		85.00		158.75	2	100.00	29.25	188.00
Springfield	July 11, 1919	28		161.25						161.25
*Rosin Hill	Feb. 15, 1919	20		145.00		80.00	1		70.00	150.00
*Franklin	April 6, 1919	19		120.15					119.50	125.75
Jeffries	July 12, 1919	29	8	109.25					116.50	123.00
Warren Plains	June 14, 1919	11		110.00						110.00

*According to last report.

*Cleveland	Mar. 29, 1919	18		78.00		51.00	1		24.21	82.71
Arcola		16		67.57					71.50	71.50
*Gold Hill	April 5, 1919	15		62.50					58.75	65.50
Shotwell	July 11, 1919	24		51.50					57.00	57.75
Totals, September 30, 1919		1,008	337	12,393.21	28,093.42	41,740.94	135	6,593.72	5,086.39	53,437.07
Totals, September 30, 1918		655	282	7,531.52	11,940.28	21,919.82	161	4,551.40	1,924.96	25,325.98

*According to last report.

The work in credit, however, cannot be measured by any financial statement however accurate and complete. Much good comes whether or not organization is effected in encouraging farmers to a wiser use of credit. Many farmers do not have the investment point of view, especially in the South, where the ideals of a leisure class have been more prevalent, and where, in consequence, an honorable expenditure of money for consumption may interfere with saving or borrowing capital for money-making. The policy has been to show farmers the high cost of supply store credit, and that borrowing is not a misfortune when the rate of interest is low enough and the investment is in an improved equipment or for adequate supplies which permit of a higher rate of return than the rate on the borrowed capital. Undoubtedly, as the agricultural clubs or community organizations get fully established which are spreading throughout the United States, the credit union will be found a most valuable asset to the farming community in financing the program for the adoption of improved methods of farming advocated by these clubs.

When the individualistic point of view is abandoned by the agricultural institutions, by the schools, churches and by the country community as a whole, the credit union no longer need work in isolation. Farmers will feel that their only salvation in dealing with vast aggregations of capital is through organization. The credit union is only one of the organizations needed for the development of the rural community. As soon as the closely related organizations, such as organizations for agricultural and social improvement, co-operative selling and buying association, which may or may not be local, are developed, then the suspicion which characterizes the present position of the farmers will be replaced with confidence and efficient team work.

No community organization for credit can solve the problem of short time credit for farmers unless the system provides for regional banks which shall discount the notes of the local credit union. At present the credit union is dependent upon the local bank. But the local bank is generally helpless to meet the enlarged needs for credit extension which occurs at a time of falling prices and of sectional or general industrial depression.

Classing Cotton for Farmers and Mills

Offices have been established at Tarboro, Wilson, Clinton, Fayetteville, Lumberton and Raleigh for the purpose of serving promptly the farmers of Edgecombe, Wilson, Sampson, Cumberland, and Robeson counties. Arrangements were made with all ginners in these counties to send samples of each bale of cotton ginned by them to the nearest office, which samples were identified by numbers corresponding to those upon the bales themselves. Upon their receipt, the samples were classed and the owner of the bale from which the sample was taken was notified of the grade and staple of his cotton, and its approximate value as compared with the quoted price of middling. The data secured in this and previous investigations indicate that farmers received about $1 for every cent expended in rendering this service. Twenty-six thousand and eighty-one bales have been classed for farmers in this manner during the present season, and about 4,036 bales were classed for cotton mills.

Establishment of Grades and Inspection Service for Potatoes

The new Standard Grading and Package Law gives the State Department of Agriculture authority to establish grades and regulations for grading, marking, branding, and inspection of all farm products. In conformity to this statute, the Chief of the Division upon the approval of the Director issued the grades recommended by the U. S. Department of Agriculture on May 1, which became the legal grades for North Carolina on June 2, 1919, that is after thirty days notice required by law. Regulations to cover the grading, marking, branding and inspection of Irish potatoes were promulgated which became effective on June 7th. Three thousand copies of grades and regulations were mailed and distributed to growers and shippers. The State was divided into four districts and a supervising inspector appointed for each district. The duties of supervising inspectors were (1) to interpret the grade to growers and shippers as far as may be feasible, (2) to see that licensed inspectors inspect according to law and regulations, and (3) to see that there has been a proper compliance with the law for maintaining the standard grades for North Carolina.

One or more inspectors were licensed for each of the leading loading points who had authority to issue certificates of grade upon application. Five inspectors were licensed for potato exchanges and thirteen for the general public. One hundred and sixty cars of exchange potatoes were inspected, and 209 cars for individual growers and shippers. Buyers on three markets co-operated to the extent of requiring that all potatoes be graded and inspected. If potatoes did not come up to grade, these buyers would require growers to run potatoes through a grading machine located at the loading point. It is hoped that this plan may be extended to several other markets the coming year. According to reports received, the grading of early Irish potatoes has been greatly improved in all sections of the State. However, the feeling is that the law to be most effective should not give growers the option of not grading or grading according to the adopted standard, but that potatoes offered for sale should be required to be graded and marked according to grade, namely U. S. 1, or U. S. 2, and with the name of grower or shipper upon each package. Undoubtedly the inspection service paid the two growers' organizations, and the growers and shippers who made use of it. In a year when movement of cars to market was slow, sometimes taking more than a week above the usual schedule, the inspection certificate was worth more than the two to four dollars which it cost, if for no other purpose than as a basis of settlement of claims with the railroads. Also, in a year of falling prices, determination of condition and grade before departure of car is most important to the shipper, as potatoes have largely to be rolled and sold while in transit or consigned.

Very close co-operation was maintained between the Market News Service and the Grading Service. Through inspectors, more loading point markets were reported, and more market prices, based upon U. S. Grade 1 and U. S. Grade 2 quoted. A most effective Market News Service can only be maintained when its quotations are based upon products which have been uniformly graded and inspected to establish and maintain the uniformity of the grade. Only quotations are comparable from those

markets which have provisions for maintaining the same standard of products.

This office provided the representative of the Bureau of Markets in charge of the Market News Service with an up-to-date list of potato growers. Statements and instructions in reference to grading potatoes were published on several occasions in the Market News Service Bulletin.

The grading service will also be applied to early sweet potatoes and late Irish potatoes this year, and possibly to late sweet potatoes, and, next year to strawberries, cantaloupes and watermelons and probably apples and cheese. A preliminary survey has been made to find out conditions at loading points to determine upon grades and regulations for cantaloupes. It is felt that even more drastic regulations than the present law probably permits, must be applied to secure the proper grading of cantaloupes and the condemnation and holding by the inspector of cantaloupes and melons which have been picked too green, as is provided for by the California Law.

Assistance in Marketing Farm Products

Assistance is rendered to individual farmers, shippers and buyers in marketing cotton, corn, soybeans, peanuts, hogs, cattle, sheep, wool, lambs, meat, potatoes, cabbage, and apples. The method followed in cotton is for farmers to send in samples and for a representative of this Division to take the samples to one or more buyers and then the bids obtained are wired to the owners of the cotton for acceptance or rejection. About 2,500 bales of cotton were marketed in this way. Assistance to individual farmers, in marketing farm products, is given mainly by mail. Growers are furnished information as to prices and possibly buyers on different markets. Lists of buyers are made up as a result of special surveys and furnished to shippers. In response to the inquiries of buyers lists of growers who have the farm products in question for sale are furnished. Wherever the need for a quick transaction exists correspondence is carried on by wire and confirmed by letter.

A considerable demand has developed for our Monthly Farmers' Market Bulletin, in which products are listed for sale. About thirty-five hundred copies of the Market Bulletin were distributed, twenty-five hundred copies of the Weekly Price Report. The last two publications are of especial assistance to this office in keeping us informed of market conditions in North Carolina towns and counties. The work of collecting a list of pure bred livestock and poultry breeders in the State has just been completed and will soon be published in the form of a directory of North Carolina breeders of pure-bred livestock.

Publications

Farmers' Market Bulletin.
Weekly Price Report.
Weekly Hog Market Quotations.
Monthly Review of Producers' Prices.
Monthly Financial Statement of North Carolina Credit Unions.

Articles published in newspapers on Cotton Grading, State Warehouse System, and Peanut, Livestock and Potato Markets.

Respectfully submitted,

W. R. CAMP,
Chief, Division of Markets, Acting State Warehouse Superintendent, Superintendent of Credit Unions.

REPORT ON DRAINAGE

To the Director:

I herewith submit the annual report on Drainage for the fiscal year ended June 30, 1919, conducted under a co-operative agreement between the North Carolina Department of Agriculture and the United States Department of Agriculture.

Mr. F. O. Bartel was appointed drainage engineer for the North Carolina Department of Agriculture on December 9, 1918, during Mr. F. R. Baker's service in the army, and succeeded Mr. Baker to this position upon his resignation in the summer of 1919.

The work has been conducted chiefly along the same lines as in previous years. In general, the extension part of our work consists (1) in assisting farmers in the improvement by drainage and terracing of lands now under cultivation; and (2) in making preliminary examinations and reconnaissance surveys for drainage districts desiring to undertake drainage improvements. The following summary gives a fairly accurate idea of the amount of work done along these lines.

Farm Drainage

During the past year, preliminary examinations, surveys, designs and reports for tile drainage systems have been made on 24 farms in 11 counties, comprising a total area of 1,200 acres. Approximately 12,000 feet of tile have been installed on these farms.

Thirty-six farms, situated in 19 counties, have been visited for the purpose of giving assistance in the location and construction of terraces to prevent hillside erosion; the total length of terraces laid out was approximately 230,000 feet or 44 miles.

Preliminary Examinations and Reconnaissance

Six examinations of a preliminary or reconnaissance nature have been made and reports issued, covering a total area of 119,000 acres.

Respectfully submitted,

H. M. LYNDE,
Senior Drainage Engineer.

REPORT ON FAIRS AND ASSISTANT TO DIRECTOR

To the Director:

I herewith submit my annual report covering the work for the past year:

The work has been continued along the usual lines, and has met with a very wholesome response from all sections of the State. A new record in the number of fairs has been realized, not only for North Carolina but, so far as we know, for the entire country.

Breaking its 1918 record of 251 fairs, the fair work for this past year is 275 fairs.

Most of the credit for this work is due to the Farm and Home Demonstration Agents, the District Agents, and to the various fair secretaries, with whom these officials co-operate, backed up by the splendid support of the public.

In the Mountain district, consisting of 18 counties, one special fair, one district fair, 9 county fairs, and 39 community fairs were held.

In the Western district, including 23 counties, there were organized and held, 3 district fairs, 8 county fairs, and 60 community fairs.

The Central district, consisting of 21 counties, included the State Fair, one district fair, 12 county fairs, and 44 community fairs.

In the Eastern district, with 19 counties, 2 special fairs, 2 district fairs, 8 county fairs, and 33 community fairs were held.

In the Tidewater district, consisting of 19 counties, 3 district fairs, 5 county fairs, and 12 community fairs were held.

The negro fairs have also done well, and the State at large is represented by one State fair, 8 county fairs, and 22 community fairs this year.

The grouping, classification, and total number of fairs follows:

A. White Fairs—

1. State Fair	1
2. Special Fairs	3
3. District Fairs	10
4. County Fairs	42
5. Community Fairs	188
Total	244

B. Negro Fairs—

1. State Fair	1
2. County Fairs	8
3. Community Fairs	22
Total	31
Grand Total	275

In co-operation with the Animal Industry Division, twenty-one judging contests, with sheep, dairy cattle, beef cattle, hogs, poultry, and horses were held for young people. There were also two butter-fat scoring contests. These various contests have proven to be a good thing, and the public is very much interested in this type of fair work.

The contests this year were held at the following fairs:

Tar River Fair at Spruce Pine.
Coastal Plain Fair at Tarboro.
Bertie County Fair at Aulander.
Forsyth County Fair at Winston-Salem.
Gaston County Fair at Gastonia.
Mecklenburg County Fair at Charlotte.
Transylvania County Fair at Brevard.
State Fair at Raleigh.

The contests were divided as follows:

Sheep	3
Dairy Cattle	6
Hogs	4
Beef Cattle	4
Horses	1
Poultry	3
Butter-fat	2
Total	23

Judges for the fairs were assigned on the usual basis, and in addition to our own organization, twelve seniors from the State College were used in the work, rendering very satisfactory service.

Co-operating with us in this work during the past year were the following organizations: State Board of Health, State Insurance Department, National War Loan Organization, Department of War, The North Carolina Cotton Association, and the State Department of Education.

The National War Loan Organization sent to each of the community fairs a play called "Thrift," which was reproduced by a number of the fairs.

Letters now being received indicate a continuance of the interest in fair work, and many fairs are already making preparations for next year.

The need for special fairs is being emphasized right along, and indications point to more of these special fairs than have been held in the past. Such special fairs are typified by poultry shows, fruit shows, livestock exhibitions and corn shows, and plans have now been put into operation for developing this type of fair work, in co-operation with the heads of divisions. These special fairs are to be commended very highly because of their educational nature, and for the things that they are trying to teach. They are vastly different from the ordinary county carnivals, and are catering to a much more representative clientele.

Five additional bulletins and circulars were published as follows:

Department of Agriculture Bulletin No. 253, entitled "1919 State Premium List."

Supplement for No. 253, entitled "How Co-operative Fair Work is Carried on in North Carolina."

Extension Circular No. 92, entitled "Score Cards for Judging at Fairs."

Extension Circular No. 94, entitled "Some Results of Fair Work in North Carolina."

"A Special List of Fairs for 1919."

The usual amount of publicity work, in connection with the fair project, was handled by the office of the Agricultural Editor, to which this Division contributed, including one special issue of the "Extension Farm News," and many newspaper articles.

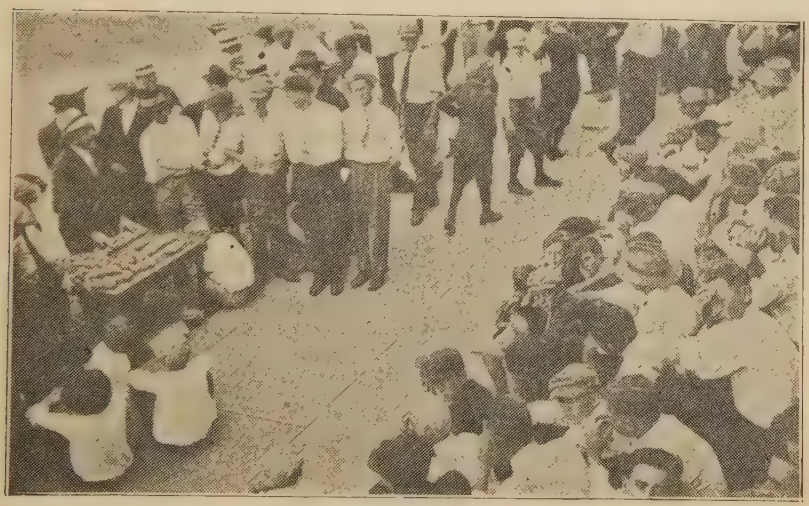
We were placed on the program of the National Association of Fairs and Expositions, meeting in Chicago, December 2d to the 5th, for the presentation of a paper entitled "The Relation of Fairs to Agricultural Extension Services."

The publications issued by this Division have met with the hearty approval and endorsement of the other states and the fair organizations over the country, reflecting with credit upon the work done.

In addition to the fair work we have assisted along the usual lines, and during the past four months have aided the North Carolina Cotton Association in the capacity of State Campaign Director.

Respectfully submitted,

S. G. RUBINOW,
Assistant to Director, and Chairman Fair Committee.



Outdoor Lecture at Short Course

REPORT ON FARMERS' INSTITUTES

To the Director:

I herewith submit to you my report of Farmers' and Women's Institutes for the year just closed.

On account of the epidemic of influenza last winter the institute work was seriously handicapped. Out of the 73 institutes planned we held only 48, 25 of them having been canceled on account of influenza. The attendance of many of those held was materially lessened for fear of contracting the disease. In fact, in many counties the health officers forbade the holding of any public gatherings. From various causes, seven of the institutes planned for the summer months had to be canceled. However, on the whole, the attendance at the institutes held was better than the year before and the interest was manifestly better. Twenty-four of the institutes held were for negroes, which was several times as many as has ever been held for them before. They show great interest in these meetings and are appreciative of the help given to them. The attendance at these meetings was very fine, totaling 5,045 persons. It is my purpose to increase the number of institutes for negroes another year.

In this report I cannot speak too highly of the fine spirit of co-operation given to our institute work by members of the Extension Service, notably that of the Animal Husbandry Division and the demonstration workers, under the direction of Mr. Hudson and Mrs. McKimmon. The district and county agents, both men and women, gave valuable assistance, which was helpful and very much appreciated by those attending the institutes.

It is a pleasure to work with people who enter into the spirit of co-operation and genuine service as graciously as the county agents and the county home demonstration agents did. It affords me great pleasure to make acknowledgment of their untiring efforts to make the institutes a means of helpfulness to the farmers and their families. I am hoping for a continuance of this hearty and helpful co-operation in the work.

On account of the high cost of everything, I find that I shall have to increase the pay for my outside helpers in institute work. They do not feel justified in neglecting their home work for the pay they have been receiving heretofore. And yet, on account of the co-operative arrangement with the Extension Service, I am inclined to think I can arrange the institutes for the coming year without an increased appropriation over that of last year. Mrs. McKimmon tells me she has some very valuable trained women workers who are retiring from demonstration work, and she feels she can secure them at reasonable prices for institute work. We will be fortunate in securing the services of these women.

There were held during the year 218 institutes, consisting of 403 sessions, with a total attendance of 25,835.

Respectfully submitted,

T. B. PARKER,

Director of Farmers' Institutes.

REPORT OF THE DIVISION OF PLANT PATHOLOGY

To the Director:

I submit herewith my report of the extension work in Plant Pathology for the fiscal year ending June 30, 1919. The work was conducted jointly by the North Carolina Department of Agriculture, the North Carolina College of Agriculture, and the Office of Cotton, Truck and Forage Crop Disease Investigations of the United States Department of Agriculture, and was carried on in co-operation with the county agents. This report includes work done by the latter under our supervision. Mr. S. G. Lehman assisted with the work during the month of June.

Cotton Anthracnose

The work on cotton anthracnose begun last year was continued. For the 1919 planting about 14,500 bushels of high-grade seed were obtained, most of which were planted in the State. The fields in which this seed was grown were carefully inspected in the fall of 1918 and very few of them had over 1 per cent of the bolls infected with cotton anthracnose, while many of the fields grown from inferior seed had 25 to 50 per cent of infected bolls.

The cotton anthracnose work is closely allied to the plant breeding work. It is desirable to use only a few of the best standard varieties and to improve these and keep them pure in addition to keeping them free from anthracnose. For this reason the work in 1919 was conducted jointly with the Division of Plant Breeding. There were two classes of co-operators, cotton breeders and cotton growers. Work with the cotton breeders was all done under the supervision of the Plant Breeding Department, with the exception of the inspection of the fields in which seed for sale was grown. All of the work with the co-operative growers was done under the supervision of the Department of Plant Pathology. In 1919 about 950 acres of cotton was planted by co-operative growers and breeders from which about 19,000 bushels of high-grade seed for planting in North Carolina in 1920 will be obtained. Work with co-operative breeders and growers was conducted in the following counties: Anson, Craven, Cumberland, Edgecombe, Hertford, Johnston, Montgomery, Nash, Pender, Pitt, Robeson, Union, and Wayne.

Cotton Wilt

The work with the cotton wilt which was begun last year was continued. The Dixie wilt resistant cotton, which was grown in five different counties, proved to be very resistant to the wilt disease. In Pitt County one bale and one-third was obtained on land which had grown but one-third of a bale the previous year. As a result of this demonstration 50 acres of Dixie wilt resistant cotton was grown in Pitt County this year. Dixie cotton was planted in Anson, Duplin, Edgecombe, Johnston, Pitt, Robeson, Sampson, and Wayne counties in 1919.

Late Blight of Tomatoes

During the summer of 1918 reports of a serious tomato trouble in Avery County were received from other Extension workers. In the fall, samples

of diseased fruits and vines were received from the county agent, Mr. C. A. Ledford. Upon examination these were found to be infected with the late blight disease. A trip was made to Avery County and plans were made for a number of spraying demonstrations to be conducted during the summer of 1919. The tomato growers were found to be very much discouraged, believing that it was impossible to control the disease, and that it was impossible to grow any tomatoes in Avery County, excepting a few green ones for pickling. During the winter of 1919 county agent J. W. Lindley reported similar trouble with tomatoes in Mitchell County, and it was planned to conduct spraying demonstrations there also.

These demonstrations were conducted, as planned, during the summer of 1919. In Avery County the work was conducted in seven small gardens near Newland and in one at Banners Elk. In Mitchell County the work was conducted in five different parts of the county: Mine Creek, White Oak, Rock Creek, Glen Ayre, and Bakersville. The tomatoes were all divided into three plots. One plot was sprayed with plain Bordeaux mixture, 5-5-50, one lot was sprayed with resin fish-oil soap Bordeaux mixture (5-5-50, 2½ lbs. resin fish-oil soap), and the third plot was not sprayed at all. The spraying was done every two weeks, as near as weather conditions would permit. Up to July 1 no late blight had appeared in either county, but the sprayed vines were much more vigorous and healthy than the unsprayed ones.

Sweet Potato Diseases

In co-operation with the Division of Horticulture, meetings were held for the purpose of discussing the diseases of sweet potatoes and the construction of storage houses in Anson, Beaufort, Cabarrus, Carteret, Catawba, Columbus, Craven, Mecklenburg, Robeson, and Wayne counties. Many individual farmers in the most important sweet potato counties were visited in company with the county agent, and they were told how to recognize and control sweet potato diseases and were advised to construct storage houses or remodel them if they were not properly constructed.

Fusarium Wilt of Tomatoes

The results of the tests with the Norton tomatoes, which have been bred resistant to fusarium wilt by the United States Department of Agriculture, showed that it will resist fusarium wilt, but will not resist bacterial wilt. In addition to the Norton tomato, three other wilt resistant varieties, Marvel, Arlington and Columbia, were sent to us by the United States Department of Agriculture for distribution in 1919. These were distributed through the county agents or home demonstrations to the following counties: Anson, Avery, Brunswick, Buncombe, Cabarrus, Carteret, Davidson, Duplin, Durham, Hoke, Iredell, Lenoir, Lincoln, Mecklenburg, Mitchell, Robeson, Sampson, Wake, Wayne, and Wilson. These varieties resisted the fusarium wilt, but failed to resist the bacterial wilt.

General

A head rot of lettuce, apparently caused by the fungus botrytis, was found to be very prevalent in New Hanover County, where it caused a loss of about 33 1-3 per cent of the crop. The lettuce growers were advised to destroy all refuse of all lettuce plants, especially those which were diseased.

A root rot of corn caused much injury to the corn crop in certain counties. This disease was either reported or observed in Bertie, Cumberland, Johnston, Nash, Robeson, and Union counties. The corn growers were advised to select their seed corn in the field and to practice crop rotation, avoiding wheat and corn on infected land for several years.

In Avery County late blight caused by Phytopthora infestans was responsible for a loss of about 75 per cent of the Irish potato crop. Potato growers were advised to spray with Bordeaux mixture next year. Many individual farmers were visited in company with county agents and were advised about the control of cotton anthracnose, wilt and rust, sweet potato wilt and black rot, tomato late blight, leaf spot and wilt, Irish potato scab, wilt and late blight, apple scab, blotch, black rot and bitter rot, peach brown rot and scab, cabbage black rot and yellows, root knot, and many other diseases. Meetings of county agents were attended and plans for next year's work were discussed. Meetings of farmers were addressed on the subject of plant diseases.

Respectfully submitted,

R. A. JEHLE,
Extension Pathologist.

REPORT OF THE DIVISION OF FARM MANAGEMENT

To the Director:

I submit herewith report of the Extension activities of this Division for the past fiscal year.

The Division of Farm Management designed its work during the year ending June 30, 1919, with a view to putting and keeping our farms, and the State in common, upon an absolutely safe, self-supporting basis during the continuance of the recent war and the period of agricultural and industrial uncertainty which followed. Since the growing of food and feed crops in abundance to meet all home and local wants was imperative, our first and greatest efforts were planned and directed to aid and encourage such production, even though that course might probably result in keeping down actual cash profits.

By means of available data and standards of consumption we worked out the actual amounts of food and feed crops required by the average North Carolina farm family and the livestock kept to operate the place and produce milk, meat, eggs and other necessary stock products. Then, through the aid of a number of county agricultural agents and tax listers, data showing just what the farmers had grown in 1917 and what they had planted before June 1, 1918, and the amount of livestock they were producing for the year was collected. Agents and tax listers from thirty-one counties joined in this work and sent in reports from nearly 3,000 farmers. These reports were analyzed and tabulated. The findings were measured by our standards of food and feed requirements for the average North Carolina farm family and necessary livestock. In this way we determined just how near our farms were already growing their own supplies and of what articles they were producing a surplus and those of which there would evidently be a deficiency. This information was incorporated into letters of suggestions and recommendations to the reporting county agents directly, and through them the matter was to be made available to their farmers and others interested. For the State in general, the data was worked out in letters given to the press and also to agents in counties other than those from which reports had been received. This matter going out as it did by the last of July, 1918, was in time to aid agents and their farmers in making plans for fall crops and livestock, through which deficiencies could be made up.

If corn growing in a county did not promise to meet all demands for that grain for the following year farmers were urged to plant oats to supplement it. A deficiency in summer-grown hay and forage could be overcome by a more liberal planting of fall and spring-growing crops such as crimson clover, vetch and cereals, planted to cut and cure in May. Shortage in pork supply could be made good either by keeping a few summer or fall pigs for late winter butchering or by caring for the older hogs to make them grow larger before they were to be killed. Practical ways of overcoming shortages in other lines were pointed out.

Farm Plans and Organization

Organization and planning for greater efficiency on farms were given due time and attention.. Plans submitted by farmers through correspondence were worked over, modified, and sent back without the necessity of a personal visit. Frequently, though, there were problems which could not be handled satisfactorily at long range. In such cases personal visits were arranged for, at which time the difficulties were taken up and solved and workable plans and suggestions given. During the year ten communities were given such visits and close range study, through which plans and suggestions were given for better organization and management of thirty farms. On most of these better pastures were outstanding needs. On nearly all of them better arrangement of fields to allow rotation of crops and economy in the use of implements, teams and labor was very evident. In some cases changes in the kinds of crops grown and the acreage devoted to each were called for, while several needed readjustment of the livestock enterprises. Means of distributing and using labor throughout a greater portion of the year was asked for by most of the farmers consulted. Numerous other problems were brought up for consideration while on these visits.

So far as possible, these questions were answered by referring to the findings of farm management surveys, and studies made either in the immediate region or in others where soil, climate and other conditions were similar to those in the neighborhood under study.

Special Meetings of Farmers

General and specific farm management matters have been taken up in open meetings in several cases. The number of farmers and members of their families attending these meetings has varied from a minimum of fifteen in one or two instances up to two hundred in others.

Farm Crops Cost Accounting

During the latter part of 1918 and earlier months of 1919, numerous queries regarding the cost of producing leading commercial crops, such as peanuts, cotton, tobacco and wheat, under conditions prevailing the preceding two or three years were taken up by correspondence and conference with interested persons and, in a few instances, in open meetings, which were well attended.

Farm Management Demonstration Surveys

Unused data carried over from the preceding year from farm surveys made in the counties of Cabarrus, Davidson, Duplin, Durham, Forsyth, Lee, Pender, and Wake has been used as material for a series of letters on organization and management problems. Four letters of the series have been mailed back to each of the farmers co-operating with us in these studies. Subjects already handled in these letters are: (1) Business statement and summary of the individual farm; (2) statement and summary, comparing a few of the more successful farms with the average of the entire number from the community, and for each individual farmer with his own place; (3) the organization of the land and its utilization for productive and non-productive purposes, and the relationship existing between this and farm

profits; (4) the distribution of productive land among the various farm enterprises and its bearing on farm profits.

At the end of the year there remained data for from four to six more letters from the first set of surveys made.

A survey of a community of twenty farms in Randolph County was made in March, 1919, and the business statement and summary returned to the co-operating farmers, who were also provided with account books for the present year.

Five communities in Catawba County covering 314 farms were covered by a farm management survey made in co-operation with the United States Department of Agriculture. This being a repetition of a survey made in 1913 and a continuation of other studies, completes matter to be worked up in bulletin form for early publication. Copies of the records remain in our office to be used as material for extension work.

Press Articles and Special Reports

This Division has prepared and given out during the year articles and interviews on farm management topics as material in hand and conditions called for. By far the greater number of them were given to the general press through the medium of the "Extension Farm News," while a few have gone directly to news and agricultural papers.

Summary of Farm Management Demonstration Work

Food, Feed Crop and Livestock Production Survey and Reports

Number of counties contributing data	31
Number of farmers co-operating	3,000
Number of crop and livestock enterprises covered	26
Number of records used in tabulation	2,300
Number of reports and letters prepared for co-operating county agents	31
Number to other county agents	20
Number to other interested parties	10

Farm Enterprise Survey and Reports

Number of counties, in which enterprise surveys were made	15
Number of farms co-operating	90
Number of enterprises covered per farm (average)	4
(Total)	360
Number of reports and papers prepared from enterprise studies	3

Farm Plans and Organization

Number of counties visited for planning and organizing farms	10
Number of farms visited	27
Number of plans furnished or suggested	40

Farm Management Demonstration Surveys

Number of counties in which surveys were made before, but used in this year's work	8

Number of communities covered by these earlier surveys	10
Number of farms co-operating	300

Surveys Made During 1918 and 1919

Number of counties	2
Number of communities surveyed	6
Number of farms co-operating	334
Number of farm management demonstration letters and reports prepared	4
Number of county agents receiving same	9
Number of co-operating farmers receiving same	320
(Total sent out)	1,252

Press Articles and Special Reports

Number of articles for press	14
Number of special reports	6

Meetings Attended and Addressed

Number of farmers' meetings	15
Number of business men and farmers' meetings	4
Number of meetings of other parties	11
Total	30
Total attendance (estimated)	2,000

Respectfully submitted,

J. M. JOHNSON,
Chief, Division of Farm Management.

REPORT ON FARM FORESTRY

To the Director:

The following report on the activities of the Farm Forestry Division, for the period between January 1, 1919, and December 31, 1919, is respectfully submitted. The calendar year, rather than the fiscal year, has been chosen as the basis for our report because this period has been one of continuous activity; the fiscal year, ending July 1, 1919, represents not more than seven months of actual service, due to the absence of the specialist in military service.

The work in the State has been carried out under the following main divisions:

Examinations: Covering—

1. **Valuation Surveys** of farm timber tracts to determine the volume and value of the merchantable timber; the methods for the production of commercial wood products; the costs of production, and markets for the products.

2. **Management surveys** of farm timber tracts in order to formulate plans for continuous timber production; better utilization; reforestation, or other forestry policies of the owner.

3. **Protection surveys** of farm timber tracts for the purpose of outlining control methods for insect attacks; diseased conditions; fire prevention, and grazing.

Marketing Farm Woodlands:

This covers actual timber operations. The Division arranges for and supervises the logging, sawing, when necessary, and the marketing of farm timber tracts.

Timber Preservation:

This work embraces educational propaganda showing the advantages of preservative treatments of farm timber products, particularly if the material is to be utilized on the farm. Demonstrations in the handling of treating plants, and the preparation of timber for treatment, are the field activities in this department.

General Forestry Educational Propaganda:

The publication of articles and news items along forestry lines; lectures before interested associations and communities; attendance at County Agent meetings and visits to County Agents in the field; the publication of departmental bulletins dealing with farm woodland problems.

Marketing Information:

This phase of the work is by means of correspondence through which inquiries as to prices and markets for farm woodland products are furnished interested owners.

In addition to the later statement of progress in the foregoing lines of work, it is felt that an explanation of the work under Examinations and Marketing Farm Woodlands will be of benefit.

Examinations

Members of the Division visit and examine farm woodland tracts upon request of the owner, after receipt of a statement outlining his policy with regard to the woodland. No charge is made for the examination, other than the actual subsistence expenses of the forester while engaged in the work. The State pays traveling expenses from headquarters to the rail station nearest the tract, and return.

The ground covered in an examination for either Valuation, Management, or Protection Surveys has been previously shown in this report.

In every type of examination, the owner is furnished a written report covering the woodland. Since July 1, 1919, there has also been furnished with the report, a map of the woodland showing boundaries, areas in the timber types, composition of the timber in the several types, and such information as to roads, etc., as will be of advantage in handling the woodland.

Marketing Farm Woodlands

It is felt that actual assistance in the handling of farm timber will create greater interest in proper management and utilization. An owner can hardly be expected to practice proper cultural methods in his timber, unless he has the expectation of either a financial profit or a betterment of the stand.

Realizing this fact, the Division plans to handle certain farm timber tracts from the stump to the market. The entire conduct of such operations will be under the control of the Division. Contracts will be let covering such timber operations as are necessary to produce merchantable products, and the products will be sold through the Division. The owner pays the cost of the operation, and receives the profits.

No tract, however, will be so handled unless the owner desires to market material which should be cut for the betterment of the entire stand, or intends to clear the land for cultivation. In the case of clearing for cultivation, the agricultural possibilities of the tract are considered. If the owner's policy of land utilization is sound, it is felt he should be aided in the sale of the cutting. Thinnings, or other types of improvement cuttings, will also be conducted under this system.

Progress Report

During the period covered in this report, the following progress has been made in the several divisions handled.

General Forestry Educational Propaganda

Five articles and news items for publication by the N. C. Extension Service have been written.

One article, entitled "Getting the Most From the Farm Woodland," was written for and published by the Progressive Farmer, Raleigh, N. C. This article was one of a series run by that publication covering the "52 Most Pressing Problems of the Southern Farmer." Many inquiries were received by the Division and by the publication, as a result of this article which were later referred to us.

A number of county agents have been visited in the course of the field work, and one general agent's meeting attended, at which time the specialist spoke on farm forestry and its place in the work of the county agent.

A bulletin, entitled "Industries Using North Carolina Farm Timber" and showing firms both in this and adjoining States which purchase farm timber products, has been issued.

A bulletin, entitled "Marketing North Carolina Farm Timber," and covering the utilization of native species, methods of estimating farm woodlands, conduct of timber operations, terms of sale, markets, and prices, is in course of preparation, and will be sent to the printer by the first of the coming year.

An article describing the work of the Division, as applicable to a specific farm woodland, has been published in "Forestry Extension Leaflet, No. 2," U. S. Forest Service and States Relations Service, Co-operating, under date of May 1, 1919.

One lecture, before the N. C. Forestry Association, was given on the occasion of its annual meeting in the spring of 1919.

A program of illustrated lectures has been tentatively arranged with the Asst. State Agent in charge of boys' club work for such communities as are interested.

Marketing Information

The Division has become an active member of the Lumbermen's Bureau, Munsey Building, Washington, D. C. As such, we are furnished with monthly summaries of the prices in the important lumber centers on all grades and sizes of native hardwoods and North Carolina pine. In addition to the monthly summaries, we are also furnished weekly telegraphic reports on prices and market conditions in the principal timber buying centers. The Division furnishes market information to the Bureau, in so far as local buyers are concerned.

This information is furnished farm woodland owners upon request, and during the past year more than 100 inquiries as to markets and prices were handled. In this connection, it is gratifying to find that numerous requests are made from other States, even as far South as Florida.

Specifications and fixed prices, for the year ending December 31, 1919, have been furnished the Division by the U. S. Railroad Administration. As a result of this practice we have been able to assist tie operators to market direct, rather than to depend upon a middleman.

Timber Preservation

The Division has been preparing for future work in this line. The Barrett Company, of New York and Chicago, are interested in the matter and have offered the loan of a treating plant. Two farm woodland owners have been interested, and will co-operate in farm timber preservation demonstrations. The work will be carried on in the spring of 1920 and it is estimated that not less than 3,000 posts will be treated for these owners.

The treatment of 500 vineyard stakes is contemplated for the Pender Test Farm, Willard, North Carolina, and will be handled when labor conditions on the farm will permit.

The farm machinery specialist, this service, has been interested in timber preservation and several joint demonstrations are planned.

Examinations

The following table shows in brief outline such information on the field work in farm woodland examinations as is pertinent to this report. A consideration of the tabulation will show the work has been concentrated, in so far as was possible, to avoid dissipation of effort and to aid in securing united interest in distinct localities.

County	Date	Owner	Area, in Acres		Examined for—	Merchantable Volume, Board Feet
			Farm	Wood-land		
Alamance	July 14-15	James P. Kerr, Haw River, R. F. D.	240(?)	100	Management; protection	500,000
	July 16-17	W. K. Scott, Haw River, R. F. D.	218	100	Management; marketing protection	750,000
	July 25	A. N. Scott, Mebane	150	75	Disease control	200,000
Cumberland	Sept. 23-24	Jonathan Evans, Fayetteville, R. F. D.	500	400	Marketing	330,000
Franklin	Oct. 9	Dr. F. R. Harris, Wood	1,000	50	Marketing	500,000
	Mar. 10-12	Charles F. Best, Youngsville, R. F. D.	450	250	Marketing; management	150,000
Halifax	April 1-5					
	April 22-24	R. E. Brickell, Halifax, R. F. D.	780	98	Marketing; management	172,000
Harnett	Aug. 14-15	"Pinewild Hunt," Overhills	35,000	35,000	Reforestation	No estimate
Moore	Nov. 11-12	Charles A. Prevost, Hemp	144	120	Management	75,000
Orange	Jan. 20-25					
	July 28-30	F. H. Thompson, Efland, R. F. D.	500	453	Management; marketing	3,100,000
	Aug. 25-28	J. H. Tolar, Cedar Grove	200	100	Marketing	500,000
Randolph	Mar. 27-28	J. A. Hornaday, Liberty, R. F. D.	143	83	Marketing; management	125,000
	Sept. 4-5	Miss Julia Thorne, Ashboro	365	350	Marketing; utilization	150,000
Vance	Oct. 7-8	Dr. F. R. Harris, Henderson	111	108	Marketing; management	678,000
Wake	Aug. 22	Miss Pattie Lee, Wendell	100	None	Reforestation	No estimate
	Sept. 17-18	B. W. Kilgore, Cary	107	107	Marketing; utilization	285,000
	Oct. 8	W. R. Bailey, Wilbon	142	75	Utilization	150,000
	Nov. 13-17	Mrs. L. D. Pearson, Apex	240	224	Marketing; utilization, management	1,200,000
Totals (20 examinations)				37,693		8,865,000

In addition to the field work in the above examinations, the Division has visited 32 portable sawmills and 28 wood-using industries.

Extended trips have also been made, chief among which was a two weeks trip to Washington, D. C., Baltimore, Md., New Haven, Conn., and Boston, Mass. On this trip the specialist conferred with Government and State forestry officials, and compared results and methods.

On June 3-5, the specialist attended a called meeting of Government foresters, State forestry officials of North Carolina, Kentucky, and Tennessee, and lumbermen from the three States mentioned. Ways and means for better utilization and management of private timberlands were discussed.

In handling the volume of work outlined in this report, the Division has written 1,248 letters, held 85 conferences, and the farm forestry specialist and field assistant have traveled by team 65 miles, railroad 4,860 miles, and automobile 4,060 miles.

Respectfully submitted,
HARRY B. KRAUSZ,
Farm Forestry Specialist.

REPORT ON FARM ENGINEERING

To the Director:

I herewith submit to you my report on Farm Engineering for the year just closed.

The main problems taken up in this work were:

1. Water supply, sewerage disposal, lighting systems and other conveniences for farm homes.
2. The use of improved farm implements.
3. Farm buildings.
4. Concrete construction.

Visits were made to counties where several persons were interested in one or more of the above propositions, and after looking over the place, advice and plans, as well as bills of materials were furnished. Later in some cases when the materials were on the ground another visit was made and actual installations put in. These were used as concrete demonstrations, and have proved to be one of the greatest factors in getting people interested in better conditions.

With the improved farm implements, advice was given as to the best type of machine suited for local conditions. Also interest was aroused in demonstrations of different kinds, and persons interested urged to attend. Personal assistance was given in many cases where the farmer was having trouble with his machinery, always with an idea of stimulating a greater interest in improved implements. Work of local interest along this line was discussed in community meetings.

Fifty-eight plans and bills of materials for water supply systems operated by engine or windmill were given.

Personal assistance was given in installing 8 of the above.

Forty-nine plans and bills of materials for the installation of hydraulic rams were given.

Personal assistance was given in installing 6 hydraulic rams.

Advice given in regard to installation of water wheels in 8 cases.

Plans for 62 home lighting plants were given, and most of these were to use a small motor operated from storage battery for pumping water, while electric irons and washing machines were also to be used.

One hundred and thirty-six blue-prints of various farm buildings were sent out, including barns, farm homes, machinery sheds, water towers, self-feeders and automatic waterers for hogs. Twenty-two tracings have been made of various plans from which these prints were taken.

Forty-six plans and bills of materials for concrete work were furnished, and the construction of 6 of these personally supervised.

Plans and bills of materials for 2 silos were given, and information in many other cases.

Eight tractor demonstrations were attended.

One hundred and forty farmers advised personally about tractors and tractor operated machinery.

Twenty-six farmers given personal assistance with tractors or tractor operated machinery.

Forty-five farmers given personal assistance with other improved implements.

Two demonstrations given with seed cleaning machines.

Three schools and engineering meetings attended.

Six agents' meetings attended.

Sixteen community meetings attended with a total attendance of 865 where work was discussed.

Sixty-two conferences with specialists, and others were held where plans and work were discussed.

Seventy-six machinery companies were visited, and most of them were always ready to give their co-operation.

Eighty-two bulletins on water supply sent out.

Thirty bulletins on concrete construction sent out.

One thousand and three hundred letters written.

Five hundred circular letters sent out.

Campaign for farm implement repair put on.

Twelve thousand seven hundred and ten miles traveled by railroad.

Two thousand and thirty-six miles traveled by automobile.

Sixty miles traveled by boat.

E. R. RANEY,
Extension Farm Engineer.

REPORT OF THE DIVISION OF PUBLICATIONS

To the Director:

Since making the last report several new lines of work have been attempted in order to keep abreast of the demands being made upon it for service to the other divisions and workers. In nearly all lines of work in which the Division has been engaged, a reasonable degree of success has been attained.

Multigraph Service

The work of editing and multigraphing the letters from the various divisions and field workers continues to be one of our largest problems. During the last fiscal year there was multigraphed 1,246 circular letters, which is an average of about 100 for each month. Of these circulars, 683,187 copies were made, this being an average of 56,933 for each month in the year. Of the total number multigraphed, 470,590 were mailed out by this Division. A good number of circulars were printed during the same period of time, as it was impossible to multigraph all submitted. The records show that 95,300 circulars were printed, and that 92,600 of these were also mailed out from this Division during the same period, or, in other words, a total of 778,487 circulars were printed and multigraphed, and a total of 563,190 were mailed from this Division during the past fiscal year.

Performing this work is only possible by the use of electrically driven machinery, which enables the limited force of the Division to handle the material which is received.

Library

One of the new lines of work taken up during the past year has been that of establishing a library containing the bulletins of the other stations and colleges. Through continual requests to the directors in other states, we have been able to collect practically a complete file of publications of both the Experiment Stations and the Extension Services. These publications have been nicely bound and filed away on shelving built for the purpose. A total of 388 bound volumes has been added to the library collection in this way. These volumes consist of the bulletins secured during the past year. However, we have also added several other bound volumes (100 to be exact) such as the year book of the Department of Agriculture at Washington, and various books from other states which came to the Division already bound, making a total of 1,061 volumes.

Representative Photographs

The securing of adequate photographs representing the agriculture of the State is another new line of work in which the Division is concerned. During the past year, 12 kodaks have been purchased and placed in the hands of the district agents of the Farm Demonstration and Home Demonstration Divisions. Up until this time only a few of these agents have been able to secure good photographs. Some of them, however, have sent in some excellent views which will be used in advertising the work of the Extension Service, as well as in the making of slides and other lecture ma-

terial. Our collection of photographs now on hand amounts to about 500 different views.

Farm Advertising

The question of farm advertising has been another feature to which the Division has been devoting some attention during the year. Several letters have been written to the leading farmers of the State asking for their experience in advertising their farm products, and some specimens of their advertising have been secured. One extension circular on this work has been issued, and has met with very favorable comment, with several thousand requests having been received for it to date. The newspapers seem to be especially pleased with the efforts being made along this line, many of them clipping and publishing extracts from the circular. The "Kansas Industrialist," issued by the Kansas State College of Agriculture, has recently carried a two column extract from this circular on its editorial page, showing that this line of work has a promising field, as well as a deserved popularity among both farmers and newspaper men.

Publications Issued

With publications, during the year this Division has issued a total of 24 extension circulars, comprising 159,000 copies. All of these circulars have been carefully edited and distributed to the different mailing lists. Some of them have been printed for particular purposes, and distributed in bulk for the furtherance of these purposes. An example of this is had in the circulars giving information as to canning fruits and vegetables; the growing of wheat in eastern North Carolina; the program of the annual short courses, and some of the other special publications. The circulars as issued are as follows: (A list of all extension circulars is attached herewith.)

Extension Circulars, July 1, 1918 to June 30, 1919

No. 68—The Organization & Management of Fairs.
No. 69—Fairs and Their Educational Value.
No. 70—Composition and Fertilizing Value of Farm Crops.
No. 71—Growing Wheat in Eastern North Carolina.
No. 72—Fourth Annual Short Course Program.
No. 73—Industries Using North Carolina Timber.
No. 74—Not issued.
No. 75—Buckwheat Production in North Carolina.
No. 76—Canning Fruits and Vegetables by 4-H Recipes.
No. 77—List of Available Publications.
No. 78—Prevent Smut.
No. 79—The Fall Army Worm.
No. 80—Soybean Harvesters.
No. 81—The School Pig.
No. 82—By-Products of Meat Curing.
No. 83—Where Good Seed May Be Obtained.
Reprint No. 43. Home Garden Suggestions.
No. 84—Growing Sweet Sorghum, etc.
No. 85—Soybean Pastures for Hogs.
No. 86—Suggested Community Club Programs

No. 87—How to Preserve Eggs for Winter Use.
No. 88—Growing Corn.
No. 89—A Colony Hog House.
No. 90—Farm Advertising.
No. 91—List of Available Publications.

During the same time, two Experiment Station bulletins No. 239, "The Tobacco Flea Beetle," and No. 241, "Soybeans and Cowpeas for North Carolina," have been issued. These two publications had a total issue of 26,000. In Technical Bulletins, No. 15, "A Monograph on Trembles or Milk Sickness and White Snakeroot," and No. 16, "Clover Stem Rot," were issued. One Annual Report of 1,000 copies was also edited and issued during the same period. This makes, for the Experiment Station, a total of five publications numbering 37,000 copies.

Considerable time and thought has been given to the printing and distribution of poster bulletins for the Extension Service. Five of these, with a total issue of 25,000 copies, were prepared and distributed during the past fiscal year by this Division. One of these, calling attention to the cheese factories of western North Carolina, was the first lithographed poster to be issued by the Extension Service. It met with a deservedly popular reception, and according to reports from the dairy field workers, has been of much aid in stimulating interest in the cheese industry in western North Carolina.

As in previous years, this Division has also edited and distributed the monthly bulletin of the State Department of Agriculture. Twelve of these bulletins, with several supplements dealing with fertilizer analyses, were issued, the regular number being about 15,000 copies for each month. In the case of the fertilizer supplements, however, only 11,000, or just enough to supply the general mailing list, were printed and distributed.

Requests for Bulletins

By properly advertising the bulletins issued by this Division, there has been a greater number of requests received during the year than heretofore. As each bulletin is received from the printer, attention is called to it in some of the publicity matter, and generally a great number of requests is received. Recently, an accurate count was made of all the requests received in two weeks, and it was found that 973 separate letters and cards had come in during that period of time. A photograph was made of the pile of requests. An enlargement made from this photograph was used in an exhibit at the State Fair, and in other places.

Informational Work

In disseminating information to the public through the press of the State, the "Extension Farm News" and the "Daily News Service" sheets to a selected list of the leading papers are still used. Very cordial relations with the press, as a whole, have been enjoyed. The "Extension Farm News" is becoming more and more in the nature of a house organ, while we are depending on securing news distribution by the "Special News Service" sheet.

Several special feature articles for use in the Sunday issues of the six leading dailies circulating in this State have been prepared during the year.

As a usual thing these feature articles have been supplied to the Charlotte Observer, Greensboro Daily News, Winston-Salem Journal, Raleigh News & Observer, Wilmington Star, and the Norfolk Virginian Pilot. A few special articles have also been supplied them for use during week days.

As a special service to the weeklies, we have prepared and issued several short items designed to aid them in building up their circulation and advertising. These short items have been widely used.

The Charlotte Observer has given this division some very desirable cooperation during the year by the issuing of special pictorial sections. Three of these were issued during the past fiscal year, and two more have been planned for the month of December, 1919. One of these will be called a Fall Fair Special, and the other a Livestock Special. Photographs for these special issues were furnished by this Division, and a special article written to accompany each pictorial section. The Charlotte Observer also issued a livestock special in December, 1918, for the purpose of advertising the State Livestock Association meetings at that place early in January.

During the year the editor has made a number of trips over the State with a view to putting the work of the Extension Service before the people, and to attend press conventions. Several individual farms have been written about in the daily press, and some feature articles supplied some of the leading farm journals. The Country Gentleman has carried one story about the work in Pasquotank, and another about the work in Anson County; The Progressive Farmer carried a feature story with reference to the work in Edgecombe County; The Southern Ruralist, a feature story about the work in Catawba County; The American Tobacco Trade Journal, a feature story about Wake County; The Banker Farmer and the Manufacturers Record have both had articles with reference to the work being done by the banks of the State in aiding in agricultural development, and Hoard's Dairyman recently carried a feature article dealing with the work of the dairy field office and the county agents in building up the pure bred dairy cattle industry of the State. Most of the material for these articles was secured by personal trips to different points, and necessitated more travel than usual.

Two trips were made out of the State during the year; one being to Columbus, Ohio, to attend the annual meeting of the American Association of Agricultural College Editors, and the other to Baltimore for the purpose of attending the National meeting of Experiment Station and Extension Service workers.

Respectfully submitted,

F. H. JETER,
Agricultural Editor.

Financial Report

The North Carolina Agricultural Extension Service in account with the United States Appropriations under Smith-Lever Act, 1918-1919.

	Smith-Lever Funds	
	Federal	State
DR.		
To receipts from the Treasurer of the United States and from State sources as per appropriations for fiscal year ended June 30, 1919, under Act of Congress approved May 8, 1914 (Smith-Lever Act)	$ 90,334.28	$ 80,334.28
CR.		
By Salaries	$ 54,470.34	$ 50,402.03
Labor	976.18	191.58
Printing and distribution of publications	3,989.30	3,815.40
Stationery and small printing	2,859.65	1,819.02
Postage, telegraph, telephone, freight, and express	3,064.90	1,112.26
Heat, light, water, and power	81.94	.85
Supplies	989.71	174.74
Library	191.92	145.25
Tools, machinery, and appliances	151.15	35.95
Furniture and fixtures	2,695.09	724.05
Scientific apparatus and specimens	538.79	53.74
Traveling expenses	20,134.14	21,543.66
Contingent expenses	191.17	315.75
Totals	$ 90,334.28	$ 80,334.28

We, the undersigned auditors of the corporation, do hereby certify that we have examined the books and accounts of the Extension Division for the fiscal year ended June 30, 1919; that we have found the same well kept and properly classified; that the receipts from the Treasurer of the United States were $90,334.28, under the act of Congress of May 8, 1914, and the corresponding disbursements $90,334.28, leaving a balance of nothing; that there have been expended as an off-set to the Federal Smith-Lever funds $80,334.28, State funds, for all of which proper vouchers are on file and have been by us examined and found correct.

And we further certify that the expenditures have been solely for the purposes set forth in the act of Congress approved May 8, 1914, and in accordance with the terms of said act.

(Signed) C. E. THOMPSON,
D. R. NOLAND,
H. L. STEVENS,
Auditors.

(Seal)
Attest: A. F. BOWEN, Custodian.
Examined and approved as correct.

B. W. KILGORE,
Director of Extension.
B. R. LACY,
State Treasurer.

SUMMARY STATEMENT OF EXPENDITURES BY PROJECTS SHOWING CLASSIFICATION OF EXPENDITURES FROM ALL FUNDS, EXCEPT THOSE FROM THE DEPARTMENT OF AGRICULTURE, USED FOR EXTENSION WORK—Continued

	Animal Industry	Bee-keeping	Markets and Rural Organization and Cotton Grading	Dairy Extension	Drainage Extension	Horticultural Extension	Plant Diseases	Farm Forestry	Farm Engineering	Rural Communities	Farm Meetings
Salaries	$5,090.28	$ 311.63	$ 12,144.41	$2,677.58	$ 953.20	$2,850.00	$ 341.67	$1,460.93	$ 900.00	$ 800.00	$ 3,031.37
Labor	52.00		174.33		2.75						
Printing and distribution of publications											
Stationery and small printing	175.30	6.76	312.08	18.00	17.25			38.01	43.25		
Postage, telegraph, telephone, freight and express	1,400.17		516.57	204.42	16.52		12.11	50.00			
Heat, light, water, and power	17.90			17.05							
Supplies	131.75		12.35	211.23		18.95	31.89	5.05			
Library	10.00	3.00	125.00	10.25							
Tools, machinery, and appliances	2.25			3.75		7.58			35.95		
Furniture and fixtures	329.90	15.75	3.50	141.00				66.25			
Scientific apparatus and specimens	46.00					4.50		35.99			
Livestock											
Traveling expenses	2,398.45	825.73	2,708.21	5,163.55	426.12	717.36	704.99	229.50	323.95		
Contingent expenses											
Totals	9,654.00	1,162.87	15,996.45	8,446.83	1,415.84	3,598.39	1,090.66	1,885.73	1,303.15	800.00	3,031.37

SUMMARY STATEMENT OF EXPENDITURES BY PROJECTS SHOWING CLASSIFICATION OF EXPENDITURES FROM ALL FUNDS, EXCEPT THOSE FROM THE DEPARTMENT OF AGRICULTURE, USED FOR EXTENSION WORK

	Total	Administration	Printing and Distribution of Publications	Farm Demonstration	Home Economics	Boys' Clubs	Negro Boys' Clubs	Fairs and Exhibits	Farm Management	Agronomy Extension	Animal Diseases
Salaries	$213,772.37	$13,728.93	$	$80,711.52	$68,771.53	$3,851.74	$1,890.00	$3,359.92	$ 340.00	$ 8,873.33	$1,684.33
Labor	1,167.76	402.18		15.50	395.12		74.55		9.00	42.33	
Printing and distribution of publications	7,804.70		7,804.70								
Stationery and small printing	4,678.67	1,405.62		1,187.73	900.08	241.80	86.71	102.00	28.50	115.58	
Postage, telegraph, telephone, freight, and express	4,177.16	804.72		217.61	344.00	33.00		197.48		357.00	23.56
Heat, light, water, and power	82.79	.80			10.66	17.05				19.33	
Supplies	1,164.45	224.16		9.25	202.96	32.40		12.00		241.46	31.00
Library	337.17	38.00			37.28					113.64	
Tools, machinery, and appliances	187.10	5.00			21.17	8.00	22.25			75.15	6.00
Furniture and fixtures	3,419.14	488.90		577.80	956.85	64.10	69.75	60.50	16.00	628.84	
Scientific apparatus and specimens	592.53	377.68								110.61	17.75
Livestock											
Traveling expenses	41,677.80	548.42		17,582.30	3,884.80	3,117.32	287.65	208.95	477.40	2,156.45	498.24
Contingent expenses	506.92			315.75	191.17						
Totals	279,568.56	18,024.41	7,804.70	100,617.46	75,715.62	7,365.41	2,430.91	3,940.85	870.90	12,733.72	2,260.88